

RESEARCH NEWSLETTER

July, 2006

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FOREWORD

This **second** issue of the University Research Newsletter for the academic year 2005-2006 provides up-to-date information about the research and other scholarly activities undertaken by the University faculty members for the half year period from January 2006 to June 2006. A healthy research program has the advantage of attracting the best faculty and students. The scope of research support has been expanded in response to global technological challenges and in order to support and sustain diverse faculty research interests. Our goals are to promote creativity; to address critical, scientific, technological and managerial issues; encourage research in areas of national significance; and to improve the quality of graduate education. This *Research Newsletter*, published by Deanship of Scientific Research on a semi-annual basis, provides an overview of our faculty's research output, as well as the funding which the University provides its faculty to pursue research and scholarship. In particular, the *Research Newsletter* reports on faculty publications, conference presentations, funded projects, and many other features.

The Deanship of Scientific Research is making its best efforts in promoting the new research grants among the faculty members so that the faculty members can actively participate in the research which is not only beneficial to their own professional career but also to the development of the society at large.

Our sincere appreciation is due to Mr. R. Jayaraman for compiling this edition of the Research Newsletter.

Dr. Mohammad S. Al-Homoud
Dean of Scientific Research

2. ABSTRACTS OF SOME OF THE RESEARCH PROJECTS RECENTLY APPROVED FOR FUNDING

1. Project No. CY/METAL/301 Investigator: Dr. M. Fettouhi (Chemistry)

Co-Investigators: Dr. Bassam El Ali (Chemistry)
Dr. Khalil Ziq (Physics)

Title: New Group 10 Metal Complexes Based on Chelate Ligands Bearing Nitroxide Radicals. Magnetic Properties and Catalytic Performance in Oxidation Reactions of Alcohols

Abstract

The main objectives of this project are the synthesis and the characterization of new group 10 metal complexes of formula MLX_2 with L = chelate ligand bearing a nitroxide radical; M = Ni, Pd, Pt and X^- = halide, SCN^- , CN^- . The compounds will be characterized by elemental analysis, IR, UV-Vis and EPR. Attempts to grow single crystals will be made and single crystal X-ray diffraction analysis will be carried out. The magnetic properties will be investigated down to 2 K. The luminescence properties of the platinum complexes will be studied both in the solid and in solution. It is expected that the planar geometry of the complexes result in a favorable molecular packing allowing strong intermolecular magnetic interactions that could lead to cooperative phenomena. Potential application in devices would be then possible. The palladium target complexes will further be studied as potential catalysts in the aerobic oxidation of alcohols into aldehydes and ketones in mild conditions. This expectation is based on the ground of the very efficient catalytic systems reported recently in the literature and based on transition metal ions and the nitroxyl radical 2,2,6,6-tetramethyl-piperidyl-1-oxy (TEMPO).

2. Project No. CHE/COPOLYMERS/302

Investigator: Dr. Saleem ur Rahman (Che)
Co-Investigator: Dr. Ahmad Yamani (EE)

Title: Development of Solid-Liquid Mass Transfer Probe Based on Limiting Diffusion Current: Application to Stirred Tanks

Abstract

Probes to measure solid-liquid mass transfer coefficients based on limiting diffusion current will be developed. The probes will be able to obtain distribution of local mass transfer coefficients at a solid surface submerged into a liquid. Distribution of mass/heat transfer coefficients is needed in many engineering applications for better design. The newly developed probes will be used to measure the transfer coefficients in square agitated vessels at various stirring speeds. The experimental data will be integrated and compared with average value obtained in other studies. Mass transfer at the wall of square agitated vessel will be modeled using computational fluid dynamics (CFD) software. The results will be compared with the experimental results.

3. Project No. CIM/SECURITY/303

Investigator: Dr. Ahmad Abu Musa (Acct)

Co-I: Dr. Jasem Al-Rumaihi (Acct)

Co-I: Dr. Mohammad Al-Khaldi (Acct)

Title: Evaluating the Security Controls of Computerized Accounting Information Systems in Saudi Arabian Banks

Abstract

The focus of this research is on evaluating the existence and adequacy of implemented security controls of Computerized Accounting Information Systems (CAIS) in the Saudi Arabia banking industry (SABI). The current research is conducted in response to numerous calls for research, that have emphasized the necessity of conducting theoretical and empirical research to enhance the body of knowledge concerned with CAIS security. There is a shortage of studies which attempt to empirically evaluate CAIS security. This research represents a substantial step in that direction. This study addresses the concept of CAIS security and its main components in an attempt to clarify confusion in that area. Through theoretical conceptualization of information and systems security an integrated theoretical framework of CAIS security which includes security objectives, threats and controls will be developed. The current research focuses on evaluating the security of CAIS rather than the security of specific information technology products and accounting software: therefore it contributes to filling a vacuum and dearth of empirical study in this research area.

An empirical survey, using a self-administrated questionnaire, has been conducted to investigate the opinions of the heads of internal audit departments (HoIAD) and the heads of computer departments (HoCD) in the entire population of the SABI regarding the following issues:

- ◆ the nature and characteristics of CAIS; and
- ◆ the prospective security controls implemented to eliminate or reduce the security threats.

This study would provide valuable empirical results regarding the characteristics of CAIS security policies, and inadequate implemented CAIS security controls in the SABI. Accordingly some recommendations would be suggested to strengthen security controls in the Saudi banking sector. From a practical standpoint, managers and practitioners alike stand to gain from the findings of this study. The results enable managers and practitioners to better secure their CAIS and to champion information technology development for success of the business.

4. Project No. ICS/VOICE/304

Investigator: Dr. Khaled Salah (ICS)

Co-I: Mr. Khalid El-Badawi (ICS)

Title: A Methodology for Successful Voice over IP Deployment

Abstract

Deploying IP telephony or voice over IP (VoIP) is a major and challenging task for data network researchers and designers. This research is to outline a step-by-step methodology on how VoIP can be deployed successfully in a typical data network. The methodology can be utilized to assess the support and readiness of an existing network. Prior to the purchase and deployment of VoIP equipment, the methodology must predict the number of VoIP calls that can be sustained by an existing network while satisfying QoS requirements of all network services and leaving adequate capacity for future growth. Our investigation work plans to utilize both analysis and simulation to investigate throughput and delay bounds. Analytical techniques are to be based on queueing theory. OPNET will be used for simulation. The research work must compare the results obtained from analysis and simulation. It is expected that the results of both analysis and simulation should be in line and give a close match. In addition, the research work plans to address numerous design and engineering issues. These issues include characteristics of VoIP traffic and QoS requirements, VoIP flow and call distribution, defining future growth capacity, and measurement and impact of background traffic. Moreover, the research work plans to present a detailed description of simulation models for network topology and elements using OPNET. Such details can be very valuable for network researchers and engineers. The research work plans to address details pertaining to modeling and representation of background and VoIP traffic, as well as various simulation configurations. As a case study, we plan to illustrate how our approach and guidelines can be applied to a typical network of a small enterprise.

5. Project No. PH/FLY ASH/305

Investigator: Dr. A.A. Naqvi (Phys)

Co-I: Dr. M.M. Nagadi (Phys)

Co-I: Dr. Omar S. Al-Amoudi (CE)

Co-I: Dr. M. Maslehuddin (RI)

Title: Measurement of Chloride Concentration in Silica Fume and Fly Ash Cement Concretes Using PGNAA Technique

Abstract

Corrosion of reinforcing steel in concrete is known to be the number one problem faced by the construction industry. It costs billions of US dollars annually to repair and rehabilitate deteriorated concrete structures. The main cause for reinforcement corrosion is the diffusion of chloride ions to the surface of the reinforcing steel. Most of the building codes specify an upper limit on the chloride concentration to avoid reinforcement corrosion. While there are several analytical techniques available for the chloride determination they are laborious as sampling procedures are tedious. Development of a nondestructive technique, that could be utilized to assess the chloride concentration without drilling powder from the structure, is desirable.

An accelerator-based Prompt Gamma Neutron Activation Analysis (PGNAA) facility has been designed by the proponents to measure chloride concentration in plain cement concrete. It is desired to design a portable monitor to measure the chloride concentration

in concrete structures with varying cement composition. This requires developing database on chloride concentration measurements in plain and blended cement, such as silica fume and fly ash, concretes. In the studies conducted so far, the proponents measured the chloride concentration in the plain cement concrete utilizing the KFUPM PGNAA facility. In the proposed study, the chloride concentration in the silica fume and fly ash cement concretes would be measured.

In this project, which is a continuation of the KFUPM/SABIC Project SAB-2002-03 entitled, “Measurement of Chloride and Sulfate Ion Concentrations in Concrete Samples for Corrosion Studies using PGNAA Technique”, it is proposed to measure the chloride concentration in fly ash and silica fume cement concrete specimens using the KFUPM PGNAA facility. Parallel to the experimental studies, Monte Carlo simulations will be carried out to generate theoretical calibration curves of γ -ray yield as a function of chloride concentration in the fly ash and silica fume cement concrete specimens. The calibration curve would be utilized to determine the chloride concentration using the yield of a specific prompt γ -ray line from chloride. Finally, experimental results would be compared with the calibration curve of the facility.

The results of the proposed study along with the data developed in the earlier project would be utilized in a subsequent study to design a portable monitor for the detection of in-situ chloride concentration in concrete structures with varying cement types.

6. Project No. ICS/GRAPHICS/306 Author: Dr. Muhammad Sarfraz (ICS)

Title: Interactive Curve Modeling with Applications to Computer Graphics, vision, and Image Processing (Bookwriting Project)

Abstract

Interactive Curve Modeling techniques and their Applications are extremely useful in a number of academic and industrial settings. Specifically, Curve Modeling plays a significant role in multidisciplinary problem solving. It is extremely useful in various situations like Font design, designing objects, CAD/CAM, Medical Operations, Scientific Data Visualization, Virtual Reality, character recognition, object recognition, etc. In particular, various problems like iris recognition, fingerprint recognition, signature recognition, etc., can also be intelligently solved and automated using curve techniques. In addition to its critical importance more recently, the curve modeling methods have also proven to be indispensable in a variety of modern industries, including computer vision, robotics, medical imaging, visualization, and even media.

This book aims to provide a valuable source, which focuses on interdisciplinary methods and affiliate up-to-date methodologies in the area. It aims to provide the user community with a variety of techniques, applications, and systems necessary for various real life problems in the areas such as: Font Design, Medical Visualization, Scientific Data Visualization, Archaeology, Toon Rendering, Virtual Reality, Body Simulation, Outline

Capture of Images, Character Recognition, Object Recognition, Signature Recognition, Industrial Applications, and many others.

It aims to collect and disseminate information in various disciplines including: Computer Graphics, Image Processing, Computer Vision, Pattern Recognition, Artificial Intelligence, Neural Networks, Fuzzy Logic, Evolutionary Algorithms, Shape Analysis and Description, Curve and Surface Fitting, Scientific Visualization, Shape Abstraction and Modeling, Intelligent CAD Systems, Computational Geometry, Solid Modeling. The major goal of this book is to stimulate views and provide a source where students, researchers, and practitioners can find the latest developments in the field of Interactive Curve Modeling and its Applications. The book provides classical and up-to-date theory and practice to get the problems solved in diverse areas of various disciplines.

All the chapters of the book will contribute towards Curve Modeling Techniques, Applications, and Systems. The book will have best possible utility for students, researchers, computer scientists, practicing engineers, and many others who seek classical and state of the art techniques, applications, and systems with curve modeling. It will be an extremely useful book for undergraduate senior students as well as graduate students in the areas of Computer Science, Engineering, and other computational sciences.

7. Project No. SE/LOCATION/307 PI: Dr. Malick Ndiaye (SE)

Title: Locating Facilities with Various Distance Functions

Abstract

The choice of the location of any facility may have impact in the success or failure of a business. To achieve such optimal site selection, location analysts have to be able to evaluate the interactions between facilities and their potential users. The main approach that has been considered is to evaluate these interactions through the distance separating the different facilities. So being able to accurately measure the distances is of crucial importance in any real case application of location theory. One of the issue that has retain the attention of researchers is the ability to determine the shortest path distance between facilities given that there are always various paths that take you to the any given point.

If we consider for instance a road network at a country level, it presents diverse features that determine the driving conditions on any specific area. Globally to each driving condition we can associate a different distance function. This is the case when we consider the variation between rural and urban networks for example. The question of finding shortest path distance on a network has generated lot of research work and various algorithms have been developed to extensively solve the problem.

The purpose of the project is to consider shortest path distance in a continuous location field for which a mixture of functions is used in different areas of the location field. We

would like to characterize the shortest path between any two positions belonging to two different areas separated by a line in the location field. The approach to solve it will be based on the mathematical properties of a norm function. The solution to this problem will open many applications; among all are facility location problems in which various distance functions are involved. We intend to extend our contribution to the solutions of the Fermat Weber with varying distance functions.

8. Project No. ES/RARE EARTH/308

PI: Dr. Mahbub Hussain (Earth Sciences)

Title: Application of Trace and Rare Earth Elements (REE) in Tectonic Interpretations of the Exposed Cretaceous Wasia Formation in Al-Kharj and Riyadh Area (Release Time Research proposal)

Abstract

Reservoir or aquifer quality of geologic formations is strongly controlled by tectonics of the depositional basin and the lithology of source terranes. While use of trace and rare earth elements (REE) in recognizing and interpreting tectonic terranes is not new, use of these elements in sedimentary research, more specifically in tectonics and sedimentation, is still limited. This is largely because of the understanding that these elements are often lost in ancient sedimentary sequences because of diagenesis. However, some recent works have convincingly demonstrated that certain heavy minerals in sedimentary rocks do contain appreciable amount of both trace and REE as fluid and mineral inclusions. In recent years, a number of workers have successfully used these elements in basin analysis and tectonic interpretations of sedimentary sequences. However, application of trace and REE in such research is almost nonexistent in the Kingdom. The proposed research will make an attempt to characterize the Cretaceous Wasia Sandstone exposed in Al Kharj and Riyadh area in terms of the trace and REE contents. In addition, selected elements will be plotted following established discriminatory diagrams to recognize tectonic regimes. Since the tectonic setting for the Jurassic and Cretaceous formations in the Arabian Peninsula is already established, the research will also offer an opportunity to verify the validity of the applications of such elements in tectonic interpretations of similar sequences elsewhere.

9. Project No. CY/ROTATION/309

**Investigators: Dr. Hassan Badawi (Chem)
Dr. Abdulaziz Al-Suwaiyan (Chem)
Dr. Wolfgang Forner (Chem)**

Title: Analysis of Vibrational Spectra and Ring-Puckering of Some Heterocyclic Compounds

Abstract

The objective of this research proposal is to investigate the conformational and structural stability of some heterocyclic compounds by Density Functional B3LYP and ab initio MP2 calculations. The 6-311+G** basis set will be utilized in these calculations. The

energies of the compounds in their stable conformations and the transition states will be optimized at the two levels of calculations. The barrier to ring puckering and their potential function coefficients will be determined by these calculations. The vibrational frequencies will be calculated at DFT-B3LYP level and the potential energy distribution PED of the fundamental vibrations will be determined from these calculations. Complete vibrational assignment of the calculated normal modes will be made based on normal calculations.

10. Project No. MS/FRACTAL/310 Investigator: Dr. Abul Hasan Siddiqi (Math. Sci.)

Title: Wavelet and Fractal Methods for the Analysis of Meteorological Data of Saudi Arabia

Abstract

Time series analysis approach for analyzing and understanding real world problems such as climate, financial data is quite popular in scientific world. Till recently statistical and Fourier analysis methods were used to detect long time trends, time of abrupt changes, seasonalities and study of compression and denoising of such time series. However, now a days, wavelets and wavelet based multifractal formalism are becoming quite popular throughout developed and developing countries for scientific study of real world problems, particularly climatic data. There are 20 meteorological stations located in different parts of the Kingdom, where metrological parameters such as wind speed, wind direction, temperature, humidity, rainfall are continuously observed and recorded.

These data for certain period of time have been analyzed by statistical and Fourier analysis methods. In the present project, we propose to study the available data as well as some new data procured from different sources by wavelet and wavelet based multifractal formalism. The analysis may prove quite useful to understand climatic changes and related problems.

**11. Project No. ARC/SEMANTIC/311 Principal Investigator: Dr. Rabee Reffat (ARC)
Co-II: Dr. Emad El-Sebakhy (ICS)**

Title: A Semantic Based Virtual Design Environment for Digital Designing in Architecture

Abstract

The research project aims to develop a semantic-based Virtual Design Environment (VDE) to support digital designing in architecture. The semantic-based approach to VDE includes functional, spatial, esthetical, environmental and contextual knowledge of building design. This provides a smart use of architectural design knowledge and transforms the current Virtual Environments to intelligent, interactive, collaborative and creative digital designing platforms for architecture that support the active participation of designers, clients, council and community. Within a semantic-based VDE, designers

will be provided with relevant design knowledge to their interests and enrich their design ideas in real-time to help achieving the best design outcomes.

**11. Project No. ICS/REVERSE ENG./312 Principal Investigator: Dr. M. Sarfraz (ICS)
Co-II: Dr. Mohammad Balah (ICS)**

Title: Reverse Engineering for Geometric Models Using Evolutionary Heuristics

Abstract

Reverse engineering of Geometric Models is one of the very important and fascinating areas of Computer Science today. It is mainly concerned with Computer Graphics, Vision and Imaging. In various applications, it is required to generate geometric models of existing objects for which no such models exist. Reverse engineering, first of all, transforms real objects into engineering models and concepts softly. Then, these soft models are transformed into the hard models required in various industrial settings including Computer Graphics (CG), Computer Vision (CV), Image Processing (IP), Computer Aided Design (CAD), Computer Aided Manufacturing (CAM), Computer Aided Engineering (CAE), and others.. These models are also used for either re-producing identical objects or for conducting further analysis on the constructed models in order to perform any necessary modifications on the original design. Reverse engineering is also used to modify the designs of existing models, hence is extensively useful for designing and re-designing purposes.

This project proposal looks at Reverse engineering of Geometric Models and plans to employ the following:

- Laser scanners will be used extensively for sampling points from object models.
- The sampled points will then be refined by removing any existing noise.
- The refined sampled points will be fitted with a standard shape, e.g. a cylinder or a sphere, or with a free-form curve or surface using one of the geometric modelling techniques such as Bezier, B-Spline, NURBS, or some another appropriate model discovered during the study.
- Since Non Uniform Rational B-Spline (NURBS) is the most general form of geometric modelling techniques, it may be adopted initially, in the first phase, for fitting free form curves and surfaces to the sampled points.
- The fitting process will involve the initial estimation of the NURBS surface control points using least-squares or some other appropriate approximation, followed by the optimization of NURBS weights to minimize the fitting error.
- Later, in a subsequent phase, another solution for :
 ⊙*Curve and Surface Approximation with a newly discovered spline method.*
 will be tackled and attempted to obtain some effective solution.
- Major concentration will be given towards the models of degree three as they are most practicable.
- The error minimization will be tackled as an optimization process where the global minimum value of the error is expected to be sought. Therefore, it would be desirable that the optimization method used for curve and surface fitting is capable of arriving at global optimum solutions.

- The number of objective function evaluations would be attempted to be kept as low as possible as the process will involve a large number of sampled points. To satisfy both criteria, Tabu Search (TS), Simulated Annealing (SimA), or Simulated Evolution (SimE), whatever may be more appropriate, would be selected as the ideal optimization technique for solving this fitting problem.
- A comparative study of the newly discovered techniques(s) and efficiently devised algorithm(s) will be made in the final phases of the project.
- The project also intends to show superiority of the project achievements over existing method(s).

It is planned to study the Reverse Engineering process for the planer objects in the early phases. In the later phases, it would be generalized and extended to the 3D object models. The expected achievements of the above mentioned goals will be valuable and useful, in CAD/CAM/CAE industry, for designing and re-designing of automobiles, ship hulls, airplane fuselages and wings, propeller blades, shoe insoles, and bottles, etc. It will also be highly effective in numerous Computer Graphics applications including animation of bodies, font designing, Visualization of Scientific Data, and Medical Visualization, etc.

12. Project No. CE/CONCRETE/313

Principal Investigator: Dr. Ali Al-Gadhib (CE)

**Title: Numerical Simulation of the Evolved Physico-Chemical Distress in Concrete Repairs and Concrete Structures
(Sabbatical Leave Proposal)**

Abstract

Concrete in many aspects is a wonder material of this century. It is probably the most widely and extensively used building material in the world, due to its low relative cost, easy availability of constituents, versatility and adoptability. In spite of the intrinsic technical and economical advantages of the material and in spite of the tremendous scientific advances which lend themselves towards a better understanding of microstructure, the concern of its lack of durability and the potential of its deterioration remain as a major global problem. The problem of durability is not confined to the existing reinforced concrete structures, but it goes beyond that to newly built R/C structures or even to repair with cementitious materials. The main objective of this research is to address the issue of concrete durability from the aspect of modeling and thus the aim is to develop a model to predict the stress buildup in patch repair system and the prediction of chloride ingress into concrete and/or concrete repair. Such model will assist not only to predict modes of failure and their influence on durability but it will be utilized to propose a concrete mix design for a given prescribed environmental condition simulating the aggressive condition in the Gulf.

This research project will enhance and develop the applicant's area of expertise of numerical modeling using FEM. This work could be extended later to address other environmental phenomenon and impact such as sulfate and carbon dioxide attack. Such

impact can be modeled without too much difficulties as the mechanism involved is controlled by the same law similar to the one that governs moisture diffusion or chloride ingress. It is estimated that 12-14 months of work will be required to achieve the aforementioned objective. This will help the continuation of the computational modeling group at the Civil Engineering Department at King Fahd University of Petroleum & Minerals (KFUPM) with the potential and be in the forefront of modeling of concrete durability. Due to the nature of the work where interdisciplinary areas are required, this research will promote interaction with faculty in other departments such as chemical and computer sciences departments. A user-friendly software will be developed as one of the achievements, which will lend itself for application and further extension to accommodate other mechanisms contributing toward concrete deterioration.

The outcome of this research and the associated recommendations will be beneficial for those working in the construction industry such as contractors, designers, and engineers. Through this project, a set of specifications will be set forth compatible with the local aggressive environment. These specifications could be part of the Saudi Arabian Code for Concrete, an endeavor which the Saudi Government has launched lately.

13. Project No. MS/NEAR-RING/314 Principal Investigator: Dr. M. Samman (Math)

Title: Some Development in Near-Ring Theory (Sabbatical Leave Proposal)

Abstract

The theory of Near-rings has been developed in many directions for the last decades. Since the near-ring, in general, is not a linear generalization of rings, a lot of algebraic techniques and ideas are involved. In this proposed work, we will be studying and developing the theory of near-rings in three aspects. The first one is the group near-rings which was introduced by Meldrum in 1976. The group near-ring $R[G]$, where R is near-ring with 1 and G is a group, is defined as a subnear-ring of $(\text{Hom}(G, R), +, \cdot)$, the near-ring of all mappings of the group G into R . In this direction we will investigate and obtain more properties of this construction that may add up to the development of the theory. Another direction is to consider the class of distributively generated near-rings. It is an important class of near-rings that have been under consideration for its closeness to rings. In this regard, we intend to generalize some results about distributively generated near-rings to the case of distributively generated seminear-rings. Finally, we will devote some effort to study derivations in near-rings. As the proponent has a lot of work in studying derivations in prime and semiprime rings, it would be an objective to generalize some important results and facts for near-rings. The purpose of this one semester sabbatical leave, which starts on September 1st, 2006, is to study and develop the theory of near-rings in the above aspects. We aim to generalize some facts and to obtain properties and results concerning near-rings. In particular, we will be considering Group near-rings and the class of distributively generated near-rings. Also we will pay some effort to derive some results concerning derivations in near-rings.

14. Project No. EE/TIME DOMAIN/315 Principal Investigator:
Dr. Husain Masoudi (EE)

Title: Broad-Band Time-Domain Beam Propagation Method
(Sabbatical Leave Proposal)

Abstract

This research proposal is written for a sabbatical leave from King Fahd University of Petroleum and Minerals (KFUPM), Dhahran, Saudi Arabia. The work described here is intended for one academic year. There are two main goals behind this leave period. The first, which is a primary goal, is to move forward scientific research along the area of modeling short optical pulses in dielectric integrated devices using a newly proposed technique. The second goal is to enhance collaborative research work between KFUPM and international reputable institutions both academically and industrially. It is also in consideration that cooperation with fabrication group working in optical devices will provide good hands-on experimental experience in the area of photonics.

The research part of proposal is aiming to develop an efficient numerical technique that can model the propagation of short pulsed optical beams in dielectric waveguides. The method is an extension to the Time-Domain Beam Propagation Method (TD-BPM), which solves the time-domain wave equation by marching the field along one direction (direction of propagation) using the classical BPM style. This arrangement has the advantage of allowing the numerical time window to follow the evolution of the pulse and hence minimizes computer storage as well as execution time. The TD-BPM, which is based on the paraxial approximation, proved earlier to be very efficient. The new technique described in this work is based on the full wave equation not the parabolic approach. All time and spatial derivatives are taken into account. The finite difference approximation is to be applied as a discretization scheme with Pade recurrence relation to account for fast propagational variations. In addition, Crank-Nicholson approach will be used as a propagational marching technique. The proposed broad-band TD-BPM method will be implemented numerically to study the propagation of pulsed optical beams in homogenous media and dielectric waveguides as well as metallic waveguides. In order to fully explore the proposed TD-BPM, many issues have to be examined carefully i.e. accuracy, stability, efficiency, convergence and appropriate numerical parameters. Therefore, several versions of the algorithm have to be developed and tested on a computer workstation for the purpose of optimizing numerical parameters. This project is expected to open a new and important door of front-line research for King Fahd University of Petroleum and Minerals, in general, and Electrical Engineering Department, in particular, in a very important research field. The graduate and the undergraduate programs will benefit significantly from this research work through the reinforcement of their courses with new insight to be gained from this leave period.

15. Project No. PH/RADON GAS//315 Principal Investigator: Dr. M.I. Al-Jarallah
(Physics)

Title: Radon Gas and Its Radiation Hazards
(Sabbatical Leave Proposal for writing a book)

Abstract

The importance of indoor radon, here taken to include radon -222 and its progeny, as a health concern is relatively new. The relationship of high radon levels and a high number

of lung cancers in uranium and other miners has been known for decades. Only recently, however people become aware of the health risks of radon that accumulates in dwellings under normal living conditions. Yet this radon, which emanates from soil and bedrock, from building materials, and even from water and air is a cause of lung cancer fatalities.

The goal of this Arabic book is to provide an introduction to the indoor radon problem in a form which is suitable for readers who have no background in radiation studies and also for those who have a familiarity with environmental radiation issues in general, but not with a details of the radon problem itself. I believe it would also be useful as a supplementary reference in courses concerned with environmental radiation.

16. Project No. CHE/ALKYLATION/317 Principal Investigator:
Dr. Sulaiman Al-Khattaf (Chemical Engg.)
Mr. Nasiru Tukur (Chemical Engg.)

Title:

Novel Process for Methanol Alkylation of Toluene to Produce Xylenes

This is a research proposal to investigate methanol alkylation of toluene to manufacture xylenes in a fluidized-bed reactor (FBR). Pxylyene is the valued product of the xylene isomers, since it is useful in the manufacture of synthetic fibers. There is therefore a continuing need to provide processes that are highly selective for the production of pxylyene. The goal of this project is to develop a novel process for selective pxylyene production by toluene methylation. The use of a FBR will allow convenient regeneration of the deactivated catalyst. To the best of our knowledge, the study is the first to carry out the methylation reaction in a FBR. The proposal is composed of mainly three sections: a review of the relevant literature, a description of the experimental methods applied, and the sections of objectives and utilization. The work will involve the use of different catalysts with different porosity such as Y-zeolite (with different silica/alumina ratio) and ZSM-5 for the methanol alkylation of toluene reactions. A range of analytical techniques will be utilized to characterize catalysts and their catalytic performance in a riser simulator unit. Experiments will be conducted to detect the optimum conditions for pxylyene making. Effects of catalyst and reaction conditions on coking will also be investigated. Several modeling approaches will be tested to model the main and side reaction. Upon the successful completion of the project, a patent might be filed for the selective production of pxylyene which comprises reacting toluene with methanol in the presence of a catalyst in a comprising a fluidized-bed reactor

17. Project No. EE/ULTRASONIC/318 Principal Investigator:
Dr. Ahmad Yamani (Electrical Engineering)
Dr. Mohammad Deriche (Electrical Engg.)

Title:

Extraction of Optimal Features from Ultrasonic NDT Signals Using Time-Frequency and Time-Scale Distributions

Manual ultrasonic inspection can be accurate but highly variable, depending on the inspection skills, training and emotional status or fatigue of the inspectors. Many inaccurate inspections result from faulty instrument calibrations, inaccurate probe selection, or inaccurate interpretation of inspection results. The human factor when

combined with variations in instrumentation, contribute to a lack of consistency in inspection results and interpretations. Automated ultrasonic defect identification (AUDI) systems are becoming increasingly popular. Motivation for the use of such systems arises from the need for accurate interpretation of large volumes of inspection data, and minimizing errors due to human factors. AUDI systems have the potential for detecting flaws and interpreting ultrasonic signals consistently and accurately.

The main parts of any AUDI system consist of a pre-processing, a robust feature extraction stage, and a classification stage. The accuracy of such a system depends on how characteristic the extracted features are. For this, considerable amount of efforts will be devoted to extracting characteristic features from ultrasonic pulse echo signals, processed using time-frequency and time-scale distributions. These features should be invariant to the measurement system, but highly dependant on the nature of the defect that causes the pulse echo signal.

Simulated defect models will be first used to generate ultrasonic pulse echoes. These signals will be analyzed using different time-frequency and time-scale distributions to extract characteristic features of defect models. The results will be tested on real defects found on petrochemical plants (mainly in welded structures).

Part of the data acquisition phase will be carried out during the proposed time release of the Principal-investigator at Uppsala University (Sweden).

18. Project No. CHE/STEEL/320

Principal Investigator: Dr. Ramazan Kahraman
Dr. Saleem ur Rahman (Chemical Engineering)
Dr. Mesfer Al-Zahrani (Civil Engineering)
Dr. Salah Al-Dulaijan (Civil Engineering)

Title:

Corrosion Investigation of Stainless Steel and Stainless Steel Clad Reinforcing Bars

In severely corrosive environments such as Eastern Province of Saudi Arabia, structures are exposed to industrial marine conditions and highly corrosive groundwater, specially at sabkha formations. The research conducted on the structures in this region during the last three decades established that reinforced concrete structures constructed using conventional concrete and carbon steel bar undergo corrosion induced deterioration within ten years after construction. Premature deterioration of reinforced concrete structures cause dearly to countries' economies. For instance, the latest estimate of the annual cost of corrosion to the highway bridges alone in the USA, including steel and concrete, is \$8.3 billion. To assure a 100-year service life, use of stainless steel-clad reinforcement is being specified. Stainless steel-clad reinforcement combines a stainless steel outer layer with a carbon steel core to provide the benefits of stainless steel at a reasonable cost.

The objective of the proposed investigation is to evaluate corrosion performance of solid stainless steel, stainless steel clad, and MMFX bars, in the laboratory. Reinforced concrete lab specimens will be prepared with varying concentration of chloride and sulfate contamination. They will be tested for corrosion initiation and propagation. The laboratory study will also involve an accelerated corrosion of steel specimens in salt solutions

contaminated with chloride and sulfate salts at various ratios. The corrosion of the steels will be monitored using DC electrochemical techniques. Corrosion rate of each kind of steel will be determined under freely and accelerated corrosion conditions in the laboratory.

The study will involve prediction of service life based on the extrapolation of corrosion rates of steels determined in the laboratory conditions as well as cost comparison of different steels tested. A morphological investigation will be conducted using OM (optical microscopy) and SEM (scanning electron microscopy). Chemical analysis by EDS (energy dispersive spectroscopy) and/or FTIR (Fourier Transform Infrared Spectroscopy) will also be conducted, as deemed necessary. AC impedance spectroscopic studies will be carried out with limited number of corrosion specimens to understand the mechanism of corrosion.

19. Project No. SE/MATH MODEL/321

**Principal Investigator: Dr. Salih Duffuaa
Dr. Mohammad Darwish (Systems Engg)
Dr. Ahmed Haron (Systems Engineering)**

Title:

Multi-Objective Mathematical Models for Process Targeting

The process targeting problem is concerned with finding the optimal parameters to optimize a selected criterion. Traditionally process targeting problems are modeled as a single objective optimization problem. In such situations the optimal parameters of the process are determined using a single objective. The objective usually is to maximize profit.

In this project the concept of Multi-objective optimization will be brought to the process targeting problem. The classical process targeting problem formulated by Hunter and Kartha (1977) will be formulated as a multi-objective optimization problem. The objectives that will be considered in this project include: profit maximization, cost minimization and total losses to society from releasing the product as measured by Taguchi quadratic loss function. A suitable and reliable multi-objective optimization technique will be employed to generate the set of efficient solutions and the trade off will be investigated between different objectives. In addition the problem will be modeled using two different quality control schemes under perfect and error prone inspection.

The project consists of three phases and extends over a period of eighteen (18) months. The outcome of the project will be several process targeting models that are expected to be utilized by process and discrete part industries to set the mean of their production processes.

20. Project No. ME/HOLLOW/322

Principal Investigator: Dr. Mohd. Antar

Title:

Accurate Estimation of Heat Leak Through Hollow Building Blocks

Accurate estimation of the heat loss across building walls is an important factor in accurately estimating the heat gain leading to precise evaluation of the cooling/heating load for selection of appropriate HVAC equipment. In the Kingdom of Saudi Arabia, about 75% of the total electric energy consumption is due to buildings because of its

hot/humid weather condition. A significant decrease in the heat leak is believed to result in considerable energy and economic saving. Moreover, the simple one dimensional calculation of the heat leak tends to over-predict the actual heat transfer rate leading to oversized equipment selection. The heat leak calculation procedure is particularly important since it is directly related to energy conservation in buildings and determining the suitable R-value or U-factor for building elements. Walls of building are made of several layers that include hollow ceramic bricks. The estimation of the heat loss across the walls/roof incorporates multidimensional conduction, convection and radiation heat transfer modes. This proposal addresses an accurate numerical scheme to be developed to estimate the 2-D heat transfer rate comprising the three modes. The significance of multi-dimensional effects in estimating the rate of heat loss will be evaluated and the cases/limits where simple one-dimensional analysis may be considered a good approximation for heat transfer rate calculations will be identified. An iterative finite-difference scheme involving conjugate heat transfer problem (boundary conditions) is therefore proposed. Upon completion of the proposed software, a parametric study will be carried out to investigate the effect of several design parameters on the heat leak and suggested property variation/block-gap lay-out so as to reduce the heat transfer rate.

**21. Project No. SE/DISCRETE-TIME/323 Principal Investigator: Dr. Mohd. Shafiq
Co-Investigator: Dr. Fouad Al-Sunni**

Title:

**Adaptive Tracking of Non-Minimum Phase Discrete-Time
Plants Using Inverses of Signals**

This proposal addresses the problem of designing adaptive output tracking controllers based on the inverses of signals. The effect of numerator polynomial on output is compensated by incorporating bounded inverses of signals in the feed-forward path instead of using the inverse of transfer function. The controller based on inverses of signals assures the boundedness of all signals from the reference input to the plant output. This controller can be designed for both minimum and non-minimum phase plants in a similar fashion. Computer simulation and experiments will be used to demonstrate the effectiveness of the proposed method.

**22. Project No. EE/LOW-PASS/324 Principal Investigator: Dr. Husain Al-Zaher
Co-Investigator-1: Mr. M.K. Al-Ghamdi
Co-Investigator-2: Mr. Noman Tassaduq**

Title:

CMOS LOWPASS Filters for Dual Bluetooth/WLAN Direct-Conversion Receiver

Abstract

The vision of cable-free environment is the driving force behind the boom of short-range wireless systems such as Bluetooth and Wireless Local Area Network (WLAN). The main objective of such technologies is handling voice and data with open standards utilizing low cost, low power, small size, and single-chip designs. Among different integrated receiver architectures, the direct conversion scheme not only provides the most efficient solution in terms of area and power but it also supports accommodation of different applications by the same device. In this receiver, a high dynamic range lowpass

filter is required for channel selection. The characteristics of the filter dominate the performance of the overall receiver. This work proposes new techniques for implementing fully integrated CMOS lowpass filters for direct conversion receiver compatible for both Bluetooth and WLAN processing. The proposed circuits will be optimized to meet the selectivity and dynamic range requirements of both standards while consuming relatively small power.

3. RESEARCH/BOOK-WRITING PROJECTS CURRENTLY SUPPORTED BY THE UNIVERSITY

College / Department -----	Principal Investigator / Co-Investigator(s) -----	Title of the Project and its Code -----
College of Engineering Sciences		
Chemical Engineering	Dr. Usamah Al-Mubaiyedh	The Stability and Dynamics of Non-Isothermal Taylor-Coutte Flow: Influence of Viscous Heating, Buoyancy and Fluid Thermal Sensitivity (CHE/TAYLOR-FLOW/262)
Chemical Engineering	Dr. Muhammad Al-Arfaj Dr. Hussain Al-Duwaish (EE)	Development and Application of State Estimators in Control of Reactive Distillation (CHE/DISTILLATION/272)
Chemical Engineering	Dr. Nadhir Al-Baghli	Photooxidation of MTBE in the Presence of Hydrogen Peroxide (CHE/MTBE/275)
Chemical Engineering	Dr. Basel Abu Sharkh Dr. Shaikh Asrof Ali (Chem) Dr. Ibnelwaleed Hussain Dr. Hasan Al-Mualem (Chem)	Influence of Hydrophobe Architecture on Self-Assembly, Rheology, and Interfacial Properties of Amphiphilic oleyelectrolyte, Polyampholyte and Neutral Co-Polymers. (CHE/ COPOLYMERS/292)
Chemical Engineering	Dr. S.M. Javaid Zaidi Dr. Sleem ur Rahman Dr. Ibnelwaleed Hussain	Development of Highly Conductive Composite Membranes for Medium Temperature PEM Fuel Cell (CHE/PEM FUEL CELL/294)
Chemical Engineering	Dr. Saleem ur Rahman (Che) Dr. Ahmad Yamani (EE)	Development of Solid-Liquid Mass Transfer Probe Based on Limiting Diffusion Current: Application to Stirred Tanks (CHE/MASS/302)
Chemical Engineering	Dr. Sulaiman Al-Khattaf Mr. Nasiru Tukur (Che)	Novel process for Methanol Alkylation of Toluene to Produce Xylene (CHE/ALKYLATION/317)
Chemical Engineering	Dr. Ramazan Kahraman Dr. Saleem ur Rahman Dr. Mesfer Al-Zahrani (CE) Dr. Salah Al-Dulaijan (CE)	Corrosion Investigation of Stainless Steel and Stainless Steel Clad Reinforcing Bars (CHE/STEEL/ 320)

College / Department -----	Principal Investigator / Co-Investigator(s) -----	Title of the Project and its Code -----
Civil Engineering	Dr. M.H. Baluch Dr. Ali Al-Gadhib	Influence of Environmental Variables and Mix Design on Moisture Transport in Concrete (CE/MIX.DESIGN/267)
Civil Engineering	Dr. Ali Al-Gadhib	Numerical Simulation of the Evolved Physico-Chemical Distress in Concrete Repairs and Concrete Structures (Sabbatical Leave) (CE/CONCRETE/313)
Electrical Engineering	Dr. Ahmad Yamani Dr. Mohammed Deriche	Extraction of Optimal Features from Ultrasonic NDT Signals Using Time-Frequency and Time-Scale Distributions (EE/ULTRASONIC/318)
Electrical Engineering	Dr. M.A. Abido Dr. Youssef Abdel-Magid	Power System Stability Enhancement Using Unified Power Flow Controllers (EE/POWER/282)
Electrical Engineering	Dr. Husain Masoudi (EE)	Broad-Band Time-Domain Beam Propagation Method (Sabbatical leave proposal) (EE/TIME DOMAIN/315)
Electrical Engineering	Dr. Husain Al-Zaher (EE) Mr. Mohd. K. Al-Ghamdi Mr. Noman Tassaduq	CMOS LOWPASS Filters for Dual Bluetooth/WLAN Direct-Conversion Receiver (EE/LOW-PASS/324)
Mechanical Engineering	Dr. Hassan M. Badr Dr. M.A. Habib Dr. S.A.M. Said Dr. R. Ben Mansour	Turbulent Natural Convec-tion Flow in Parallel and Con-verging-Plate Vertical Channels (ME/TURBULENT/246)
Mechanical Engineering	Dr. Zaki Ahmad (ME)	Principles of Corrosion Engineering and Corrosion Control (Book-writing Project) (ME/COR. ENG. /258)
Mechanical Engineering	Dr. Mohammad Antar Dr. Maged El-Shaarawi	Entropy Generation Around a Solid/Liquid Sphere in a Gas Stream (ME/ENTROPY/261)
Mechanical Engineering	Dr. Zaki Ahmad Dr. Maysser Al-Haddad Mr. B.J. Abdul-Aleem	Exploring the Corrosion Behavior of New Generation Scandium Reinforced Aluminum Alloys for Service Performance (ME/ALLOYS/288)

College / Department -----	Principal Investigator / Co-Investigator(s) -----	Title of the Project and its Code -----
Mechanical Engineering	Dr. Mohammad Antar	Accurate Estimation of Heat Leak Through Hollow Building Blocks (ME/HOLLOW/323)
College of Comp. Sci. & Engg. Information & Computer Science	Dr. Khaled Salah Mr. Khalid El-Badawi	A Methodology for Successful Voice over IP Deployment (ICS/VOICE/304)
Information & Computer Science	Dr. M. Sarfraz	Interactive Curve Design with Applications in Computer Graphics, vision and Image Processing (ICS/GRAPHICS/306)
Information & Computer Science	Dr. M. Sarfraz	Reverse Engineering for Geometric Models Using Evolutionary Heuristics (ICS/REVERSE ENG/312)
Computer Engineering Department	Dr. Mohammad Sadiq Sait Dr. A.S. Abdul Waheed Mr. Mahmoud R. Minhas	Parallel Iterative Heuristics for Performance-Driven Low-Power VLSI Standard Cell Placement (COE/CELL.PLACE/263)
Computer Engineering Department	Dr. Mohammad Elrabaa	Development of Digital Circuit Techniques for Clock Recovery and Data Re-Timing for High Speed Non-Return-to-Zero Source-Synchronous Serial Data Communications (COE/DIGITAL/287)
Systems Engineering	Dr. Umar Al-Turki Dr. Shokri Z. Selim Dr. Abdulbasit Andijani	On Stochastic Single Machine Early-Tardy Scheduling SE/SCHEDULE/191
Systems Engineering	Dr Mohammad Ben Daya Dr. Mohammad Darwish Dr. Kadir Ertogral	Integrated Manufacturer-Retailer Supply Chain Models (SE/CHAIN.MODEL/265)
Systems Engineering	Dr. Malick Ndiaye Dr. Shaik Arifusalam (SE)	Integrating Retailing Location Models with GIS in Siting Support System (SE/RETAIL/279)
Systems Engineering	Dr. Malick Ndiaye	Locating Facilities with Various Distance Functions (SE/LOCATION/307)

College / Department -----	Principal Investigator / Co-Investigator(s) -----	Title of the Project and its Code -----
Systems Engineering	Dr. Salih O. Duffuaa Dr. Mohammad Darwish Dr. Ahmed Haron	Multi-Objective Mathematical Models for Process Targeting (SE/MATH MODEL/321)
Systems Engineering	Dr. Muhammad Shafiq Dr. Fouad Al-Sunni	Adaptive Tracking of Non-Minimum Phase Discrete-Time Plants Using Inverses of Signals (SE/DISCRETE TIME/323)
Accounting & MIS	Dr. Haider Madani	Corporate Disclosure and Reporting Practices in the Gulf Cooperative Council Countries: A Cross-National Comparative Investigation (CIM/DISCLOSE/248)
Accounting & MIS	Dr. Ahmad Abu Musa Dr. Jasem Al-Rumaihi Dr. Mohammad Al-Khalidi	Evaluating the Security Controls of Computerized Accounting Information Systems in Saudi Arabian Banks (CIM/SECURITY/303)
College of Sciences Chemistry	Dr. Anvarhusain Isab Dr. M.I.M. Wazeer	Multinuclear NMR Study of the Interactions of some Sulfur Containing Biologically Important Ligands with CD^{2+} and Hg^{2+} Ions (CY/NMR STUDY/277)
Chemistry	Dr. Bassam El Ali Dr. Basel Abu Sharkh (Che) Dr. Mohammad Morsy Dr. Mohammad Fettouhi	Regioselective Catalytic Hydrocarboxylation of Alkynes by Palladium Complexes. Effects of the type of Ligands and Additives. Computational Study of the Mechanisms of Reaction (CY/PALLADIUM/295)
Chemistry	Dr. Hassan M. Badawi Dr. Wolfgang Forner	Potential Surfaces and Vibrational Analysis of Some Halo Propanols (CY/PROPONELS/297)
Chemistry	Dr. M. Fettouhi (Chem) Dr. Bassam El Ali (Chem) Dr. Khalil Ziq (Phys)	New Group 10 Metal Complexes Based on Chelate Ligands Bearing Nitroxide Radicals. Magnetic Properties and Catalytic Performance in Oxidation Reactions of Alcohols (CY/METAL/301)

College / Department -----	Principal Investigator / Co-Investigator(s) -----	Title of the Project and its Code -----
Chemistry	Dr. Hasan Badawi (Chem) Dr. Abdulaziz Alsuwaiyan (Chem) Dr. Wolfgang Forner (Chem)	Analysis of Vibrational Spectra and Ring-Puckering of Some Heterocyclic Compounds CY/ROTATION/309)
Earth Sciences	Dr. Mohammad Makkawi	Groundwater Resources and Environmental Management: Industrial Experience in Modeling Groundwater Aquifers (ES/GROUND-WATER/290)
Earth Sciences	Dr. Mahbub Husain (Release Time Proposal)	Application of Trace and Rare Earth Elements (REE) in Tectonic Interpretations of the Exposed Cretaceous Wasia Formation in Al-Kharj and Riyadh Area (ES/RARE EARTH/308)
Mathematical Sciences	Dr. Abdulwahab Kharab (Bookwriting Project)	An Introduction to Numerical Methods: A Matlab Approach (2 nd edition of the existing book) (MS/MATLAB-2/293)
Mathematical Sciences	Dr. Faisal Fairag	Theoretical and Computational Aspects of the Stream Function Form of a Ladyzhenskaya Model for Incompressible Viscous Flow (MS/STREAM FUNCTION/278)
Mathematical Sciences	Dr. Selim Messaoudi	On Some Singular Visco-elastic Problems (MS/VISCOELASTIC/298)
Mathematical Sciences	Dr. Mohammad El-Gebeily Dr. Khaled Furati Dr. Hattan Tawfiq	Approximating Singular ODEs by Nearby Regular Ones: Theoretical and Computational Issues (MS/SINGULAR ODE/274)
Mathematical Sciences	Dr. Jawad Abuilhail	Primeness and Coprimeness Conditions for Comodules and Corings (MS/ CORINGS/296)
Mathematical Sciences	Dr. Abul Hasan Siddiqi	Wavelet and Fractal Methods for the Analysis of Meteorological Data of Saudi Arabia (MS/FRACTAL/310)

College / Department -----	Principal Investigator / Co-Investigator(s) -----	Title of the Project and its Code -----
Mathematical Sciences	Dr. Mohammad Samman	Some Development in Near- Ring Theory (Sabbatical leave proposal) (MS/NEAR- RING/314)
Physics	Dr. S.M. Al-Amoudi Dr. H. Bahlouli	Real-Time Dynamics of Bose- Einstein Condensates (PH/BOSE/241)
Physics	Dr. Abdullah Alsunaidi (Phys) Dr. Basel Abu Sharkh (Che)	Self-Assembly in Confined Semiflexible Copolymers (PH/COPOLYMERS/268)
Physics	Dr. Abdullah Alsunaidi Dr. H. Bahlouli	Mesoscale Simulation of the Response of Liquid Crystal Molecules to External Aligning Fields (PH/LIQUID/283)
Physics	Dr. Mohammad Al-Kuhaili Dr. S.M.A. Durrani Dr. E.E. Khawaja (Consultant)	Development of a New Method for Determining the Optical Constants (n and k) of Thin Inhomogeneous Films (PH/OPTICAL/286)
Physics	Dr. M.I. Al-Jarallah	Radon Gas and Radiation Dangers (Sabbatical leave to write a book) (PH/RADON GAS/315)
Physics	Dr. Nouar Tabet Dr. A. Mekki Dr. K. Mezghani (Mech Engg.)	DC-Magnetron Sputtering Synthesis and Characterization of the Physical Properties of Zinc Oxide Thin Films (PH/DC-MAGNETRON/299)
Physics	Dr. A.A. Naqvi (Phys) Dr.M.M. Nagadi (Phys) Dr. Omar Al-Amoudi (CE) Dr. M. Maslehuddin (RI)	Measurement of Chloride Concentration in Silica Fume and Fly Ash Cement Concretes Using PGNAA Technique (PH/FLY ASH/305)
College of Environmental Design Architecture Department	Dr. Rabee Reffat (ARC) Dr. Emad El-Sebakhy (ICS)	A Semantic Based Virtual Design Environment for Digital Designing in Architecture (ARC/SEMANTIC/311)

Construction Engineering
& Management Dept.

Dr. Mohammad Al-Khalil

The Value Engineering
Experience at Saudi Aramco
(CEM/VALUE ENG/276)

**College of Industrial
Management
Department of
Management &
Marketing**

Dr. Mohammad Bureay

**Islamic Management and
Administration
(CIM/ISLAMIC
MGT/289)**

4. RESEARCH PROPOSALS UNDER REVIEW

#	Name of Faculty & Department	Title of Research Proposal
1.	Dr. Abdeslem Lyaghfour, Mathematics Department	On the Continuity of the Free Boundary in a Class of Elliptic Free Boundary Problems with Neumann Boundary Condition
2.	Dr. Esmail Mokheimer Dr. Tarek Abdel-Galil Dr. Faleh Al-Sulaiman (ME)	Techno-Economic Feasibility Study for Implementing Efficient Air Conditioning Technologies for Local Manufacturers of small Central Air Conditioners
3.	Dr. Sheikh Sharif Iqbal (EE) Dr. Saad Al-Shahrani (EE)	Design of Active 24-GHz Microstrip Linear Phased Array-Antenna for Microwave Sensors
4.	Dr. M. Mohandes (EE) Dr. Maan Kousa (EE) Dr. S. Al-Shahrani (EE) Mr. A. Abul Hussain (EE)	RFID Wristband Tag for Pilgrims Identification
5.	Dr. S.M.A. Durrani (Phys) Dr. M.F. Al-Kuhaili (Phys) Dr. A.A. Jabbar (Phys)	Cerium Oxide Tin Film Gas Sensor for Monitoring of Carbon Monoxide
6.	Dr. Salah M. Sultan (Chemistry)	Sequential Injection Analysis Technique for Automated Titrations (Release time)
7.	Mr. Ejaz Ahmed (ICS) Dr. Muhammad Salahdin Mr. M.I. Abbasi Mr. Bashir Muhammad Ghamdi	Implementation of Staging Schema for Web Based Data Warehousing Applications
8.	Dr. M.H. Baluch, CE Dept. Dr. Ali H. Al-Gadhib Dr. O.S.B. Al-Amoudi Dr. M. Kalimur Rahman	Engineering Guidelines for Application and Design of Prestressed Precast Hollow Core Concrete Slabs Strengthened with CFRF Sheets.
9.	Dr. Ali A. Shash (CEM) Dr. Mohammad Baluch (CE) Dr. Muhammad Kalimur Rahman (RI) Dr. Ali Al-Gadhib (CE)	Study on Reactive Powder Concrete for Repair and Retrofitting of Concrete Structures
10.	Dr. Mohammed A. Al-Daous (Chem)	Growth of Uniform Zeolite Layers on 3D Ordered Macroporous Anion Modified Zirconia: Synthesis, Characterization, and Catalytic Evaluation
11.	Dr. Walid Abu Dayyeh (Math) and Dr. Hassen Muttalak (Math)	Estimating $P(Y < X)$ using Ranked Set Sampling in Case of the Exponential Distribution.
12.	Dr. Hassen A. Muttalak (Math) Dr. Walid S. Abu-Dayyeh (Math)	Confidence intervals estimation of the location and scale parameters of the logistic distribution using the pivotal method.

13.	Dr. Ibnelwaleed A. Hussein, Dr. Basel F. Abu Sharkh, Dr. Muhammad Al-Arfaj, Dr. João B.P. Soares, Professor of Chemical Eng., University of Waterloo, Canada, Consultant	Synthesis; Solution, Melt, and Solid-State Properties; and Modeling of Metallocene Polyolefins with Controlled Long Chain Branching
14.	Dr. Muhammad Al-Arfaj (Che) and Dr. Habib Zughbi (Che)	Development of a Generic Framework for Integrating CFD Models in the Feedback Control System Phase I: Application to Heat Exchanger Inlet Area.
15.	Dr. Habib Zughbi (Che) Dr. Habib Al-Ali (Che)	Investigation of the Hydrodynamics of a Moving Bed Reactor.
16.	Dr. Alhassan G. Abdul- Muhmin Mr. Irfan Ilyas (MBA)	Awareness, Adoption and Maturity Level of Customer Relationship Management (CRM) Practices in Saudi Companies.
17.	Dr. Muhammad Asad Sadi Dr. Obaid Al-Abdali (CIM)	An Examination of Saudization Policy in the Service Sector: The Replacement of Foreign Workers with Locals in Saudi Arabia
18.	Dr. Haidar M. Fraihat (Acct & MIS)	A Conceptual IT-Based Model for Collaborative Research Environments
19.	Dr. Zain Yamani (Phys) Dr. M.A. Gondal (Phys) Mr. Talib Husain (Phys)	Laser Induced Breakdown Spectrometer for Trace Element Analysis.
20.	Dr. M. Aslam Chaudhry (Math) Dr. Azhar Qadir (Math)	Extension of Ramanujam Master Theorem and Applications
21.	Dr. G.D. Khattak (Phys) Dr. A. Mekki (Phys)	Direct Current (DC) Conductivity Studies of Strontium-Borate Vanadate Glasses.
22.	Dr. Ahmed Z. Algarni Dr. Ayman H. Kassem (Aerospace Engg.)	A Toolbox for Remote-Sensing-Satellite Mission-Analysis and Design
23.	Dr. Tareaq Y. Al-Naffouri (EE) Consultant: Dr. Babak Hassibi (External)	The Effect of Spatial Correlation on the Capacity of Multi-Input Multi-Output Broadcast Channels with Partial Side Information
24.	Dr. S.M.J. Zaidi (Che) Dr. I.A. Hussein (Che) Dr. U.A. Mubaiyedh (Che)	Separation of Binary Organics Mixtures Using Novel Composite Polymeric Membranes by Pervaporation
25.	Dr. Mohamed Adnan Landolsi Dr. Wajih Abu-Al-Saud Mr. Ahmed Abul-Hussain (EE)	Development of a Software-Defined Radio Platform for Communication System Design
26.	Dr. Hamoud Ahmed Dehwah	Optimization of Mix Design and Durability of

	(Math) Dr. Mohd. Maslehuddin (RI) Dr. Omar B. Al-Amoudi (CE)	Self-Compacted Concrete
27.	Dr. Salim Messaoudi (Math)	General Decay in Viscoelastic Damped Equations
28.	Dr. Mansour Murad (Management & Marketing)	An Empirical Study on the Factors Influencing Employer Decisions in Hiring and Retaining Individuals with Disabilities in the Arab World
29.	Dr. Abdullah Alsunaidi (Phys) Dr. H. Bahlouli (Phys)	Dynamics and Morphology of Phase Separating Liquid-Crystal/Polymer Blends
30.	Dr. Amro Al-Qutub (ME) Dr. Ibrahim Allam (ME) Mr. M. Abdul Samad (ME)	A Study on the Dry Sliding Wear of 6061 Al/Al ₂ O ₃ Particulate Reinforced Aluminum Alloys Against Automobile Brake Materials
31.	Dr. Muhammad A. Sadi (Mgt) Dr. Salem M. Al-Ghamdi (Mgt)	Franchising in Saudi Arabia: A Study of the Small-Medium Enterprise Context
32.	Dr. Ibrahim Rahimov (Math)	Functional Limit Theorems for Branching Stochastic Process with Time-Dependent Immigration
33.	Dr. M. Saleh Ashoor (IAS Dept.) Dr. Israr S. Khan (CIM) Dr. S. Ballal, King Faisal University, Dammam	An Investigation of Repetitive Strain Injuries (RSI) Among the Computer Users in Universities of Saudi Arabia. (Revised proposal submitted on 25.10.2005).
34.	Dr. Aimen El-Maleh, Computer Engineering	On Improving Reliability of Digital System Design at the Nanoscale: Research proposal submitted for 2 months summer in the UK by Dr. Aimen El-Maleh, COE Department

**PROPOSALS SUBMITTED UNDER JUNIOR FACULTY RESEARCH GRANTS
DURING THE ACADEMIC YEAR 2005-2006**

S. No.	Project No	Name of Faculty	Department	Title of the Proposal
1	JFRG/2006-01	Dr. Ahmad Abul-Jabbar Al-Yamani	Computer Engineering	Scan Test Cost and Power Reduction through Systematic Scan Reconfiguration
2	JFRG/2006-02	Dr. Tareq Y. Al-Naffouri	Electrical Engineering	Frequency Domain Estimation of Time Variant Channels in OFDM
3	JFRG/2006-03	Dr. Salahadin A. Muhammad	ICS	Efficient Partitioning and Merging XML Documents
4	JFRG/2006-04	Dr. Ali Hussein Muqaibel	Electrical Engineering	Directional UWB Channel Characterization
5	JFRG/2006-05	Dr. Mohammad Wasim Raad	Computer Engineering	Embedded Novel Signal Processing Algorithms for Gamma Ray Spectroscopy
6	JFRG/2006-06	Dr. T. F. Ayinde	Mechanical Engineering	Natural Convection Heat Transfer From an Array of Discrete Protruding Heat Sources
7	JFRG/2006-07	Dr. Abdullah M. Al-Garni	Aerospace Engineering	Numerical Simulation of the Turbulent Flow Around Generic Automotive Bluff Body
8	JFRG/2006-08	Dr. Alaa El-Din Hussein	Electrical Engineering	High Precision 3-D Power Line Electromagnetic Field Sensor
9	JFRG/2006-09	Dr. Yahya Al-Harhi	Electrical Engineering	Opportunistic Scheduling and Adaptive Modulation in Wireless Networks
10	JFRG/2006-10	Dr. Hussain M. Al-Qahtani	Mechanical Engineering	Analytical Solution for Laser Step Input Intensity Pulse: Evaporative Heating of Semi-Infinite Solid
11	JFRG/2006-11	Dr. Mustafa Eid	Accounting and MIS	A Computer Based Learning System for the task of Entity Relationship Diagram Modeling

5. BOOK-WRITING PROPOSALS SUBMITTED FOR FUNDING
WHICH ARE UNDER REVIEW

S. No.	Name of Faculty & Department	Title of the Research Proposal
1.	Dr. Abdulaziz Al-Jalal, Physics Dr. Ibraheem Nasser, Physics Mr. Khateeb-ur-Rehman, Physics	General Physics Multiple-Choice Questions: Waves, Thermodynamics, Electricity and Magnetism
2.	Dr. Adel Aldosary, City & Regional Planning Department Mr. Syed Masiur Rahman, Lecturer-B, Civil Engineering Department	Localization in Saudi Arabia: Social and Economical Perspectives.
3.	Dr. Muhammad Sarfraz, ICS	Interactive Curve Design with Applications in Computer Graphics, Vision and Image Processing

6. SABBATICAL LEAVE PROPOSALS RECEIVED FOR 2006/2007

College/ Department	Name of Faculty	Title of Sabbatical Proposal	Host Institution
College of Engineering Electrical Engineering Department	Dr. Husain Masoudi	Broad-Band Time-Domain Beam Propagation Method	University of Toronto, Canada
Civil Engineering Department	Dr. Ali Al-Gadhib	Numerical Simulation of the Evolved Physico-Chemical Distress in Concrete Repairs and Concrete Structures	
College of Sciences Physics	Dr. M.I. Al-Jarallah	Sabbatical leave proposal for writing a book in Arabic entitled Radon Gas and Radiation Dangers	
Mathematical Sciences	Dr. Mohammad Samman	Sabbatical leave proposal entitled: Some Development in Near-Ring Theory.	Host Institute: University of Linz, Austria. Sabbatical Year: 2006-2007

**7. SABIC AND FAST TRACK PROPOSALS RECEIVED DURING
NOVEMBER 2005 FOR FUNDING**

S. No.	Name of Faculty	Department	Title of the Proposal
SF-2006-01	Dr. A.H. Bukhari Dr. F.D. Zaman	Mathematical Sciences	Lie Symmetry Methods and Some Nonlinear PDES
SF-2006-02	Dr. Mohammad Said Oukil	Mgt & Mkt.	Technology Entrepreneurship: A Survey Analysis of KFUPM Graduates
SF-2006-03	Dr. Ramazan Kahraman Dr. Mehmet Sunar	Che. Engineering Mech. Engg.	A Study on Environmental Degradation of Aluminum Joints Bonded by Rubber-Modified and Alumina Filled Epoxy Adhesives
SF-2006-04	Dr. Abdulwahab Kharab Dr. Fatah Z. Khary	Mathematics Physics	Two-Dimensional Penetration of a Projectile into a Soil Medium
SF-2006-05	Dr. Rajai Alassar	Mathematical Sciences	Acoustic Streaming on Oscillating Spheres
SF-2006-06	Dr. Jawad Abuihlail	Math. Sciences	Semi-Corings and Semi-Comodules
SF-2006-07	Dr. F.D. Zaman Dr. A.H. Bukhari	Mathematical Sciences	A Domain Decomposition Method for Some Deterministic and Stochastic Problems
SF-2006-08	Dr. Selim Messaoudi Dr. Nasser-eddine Tatar	Mathematical Sciences	Stabilization of a System of Strongly Coupled Nonlinear Equations Arising in Viscoelasticity
SF-2006-09	Dr. Hassen Muttalak Dr. Abu-Dayyeb Walid	Mathematical Sciences	Confidence-Intervals Estimation of the Location and Scale Parameters of the Logistic Distribution Using the Pivotal Method
SF-2006-10	Dr. Ibrahim Rahimov Dr. Bilal Chanane	Mathematical Sciences	Investigation of the Branching Stochastic Process with Incubation
SF-2006-11	Dr. Salim Messaoudi Dr. Aissa Guesmia	Mathematical Sciences	Uniform Stabilization of Some Timoshenko-Type Systems
SF-2006-12	Dr. Hamoud Ahmad Dehwah Dr. O.S.B. Al-Amoudi	Mathematical Sciences Civil Engg.	Evaluation of Ternary-Blended Cement Systems for Improving Concrete Durability in the Arabian Gulf
SF-2006-13	Dr. Abdeslem Lyaghfour	Mathematical Sciences	On the Flow of Three Immiscible Fluids in an Unbounded Porous Medium
SF-2006-14	Dr. Raja M. Latif	Mathematical Sciences	Characterizations and Application of Theta-Open Sets and Mappings
SF-2006-15	Dr. M.A. Bokhari Dr. Hussain Al-Attas	Mathematical Sciences	Combination of Orthogonal Collocation Points with Pre-assigned Knots: A Study of Numerical Solutions of Boundary Value Problems
SF-2006-16	Dr. Taqi N. Al-Faraj Mr. Ali S. Al-Darweesh	Management & Marketing	Assessing and Benchmarking the Performance of Maintenance Units Using DEA: An Empirical Study on SABIC Affiliates
SF-2006-17	Dr. Esam E. Hassan	Electrical Engg.	Design of Optimal Narrow Band Filter for Delta Sigma Modulator
SF-2006-18	Dr. Salam A. Zummo	Electrical Engg.	Performance of Coded Diversity Systems in Wireless Environments

SF-2006-19	Dr. Sheikh Sharif Iqbal Dr. Mahmood Dawood	Electrical Engg. Electrical Engg.	Circularly Polarized Planar Semiconductor Phase Shifters for Phased Array Antennas
SF-2006-20	Dr. Ibrahim El-Amin Dr. M.A. Abido	Electrical Engg. Electrical Engg.	Power System Stability in the Deregulated Environment
SF-2006-21	Dr. Azzedine Zerguine Dr. Asrar Sheikh	Electrical Engg. Electrical Engineering	A Fast Variable Step Size Blend Equalization Algorithm Based on Multiple Constraints
SF-2006-22	Dr. M. M. Dawoud Dr. A. Zerguine	Electrical Engg. Electrical Engg.	Development of a Tracking System for Moving Targets
SF-2006-23	Dr. Mohammad A. Abido	Electrical Engg.	A Novel Multiobjective Particle Swarm Optimization Technique: Development and Applications
SF-2006-24	Dr. Mohamed Shwehdi Dr. Tarek Sheltami Dr. Umar Johar	Electrical Engg. Computer Engg. Electrical Engg.	Investigation on Safe Grounding and Bonding Procedures Requirements in International Distribution System
SF-2006-25	Dr. Mohammad Sqalli Dr. Mostafa Abdel-Barr	Computer Engineering	Design and Performance Analysis of a P2P Fault-Tolerant Network Management System
SF-2006-26	Dr. Mohammad Sqalli Dr. Sadiq Sait	Computer Engineering	Engineering Modern Iterative Heuristics to Solve the OSPF Weight Setting Problem
SF-2006-27	Dr. Mohamed A. Morsy Dr. Salah Sultan	Chemistry Chemistry	Electron Paramagnetic Resonance Characterization of Ketoconazole in Drug Formulation by Different Oxidizing Agents
SF-2006-28	Dr. Anvarhusain Isab Dr. M.I.M. Wazeer	Chemistry Chemistry	Chelation of Ethylene Diamine and Its Derivatives with Nd^{10} Metal Ions: Solution and Solid State NMR and X-Ray Structure Studies
SF-2006-29	Dr. Shaikh Asrof Ali Dr. Hasan A. Muallem	Chemistry Chemistry	Effects of Charge Types on the Viscometric Behavior of a Variety of New Associating Ionic Polymers
SF-2006-30	Dr. M. Abdulmajeed Al-Daous	Chemistry	3D Ordered Monoporous Carbon Silica Composite Supported CoMoS Hydrodesulfurization Catalyst: Synthesis, Characterization and Catalytic Evaluation
SF-2006-31	Dr. Mohd. N. Siddiqui Dr. Halim Redhwi	Chemistry Chemical Engg.	Pyrolysis of Mixed Plastic Wastes for Recovery of Useful Liquid Products
SF-2006-32	Dr. Salah M. Sultan Dr. M.A. Morsy Dr. Abdulmutallib Jaber	Chemistry Chemistry Chemistry	Adoption of a Novel Method for the Assay of Diclofenac Sodium in Pharmaceutical Formulation Utilizing Sequential Injection Analysis Technique
SF-2006-33	Dr. El-Sayed El-Affy Dr. Shokri Selim	ICS SE	Multi-Criteria Adaptive Traffic Engg for Differentiated Series: MPLS Networks Using Evolutionary Algorithms
SF-2006-34	Dr. Khaled Salah Dr. S.M. Bukhari Dr. Khalid El-Badawi	ICS ICS ICS	Deploying Desktop Video-conferencing Over Existing IP Networks
SF-2006-35	Dr. Mohd Al-Shayeh Dr. Jarallah Al-Ghamdi	ICS ICS	Software Metrics Definition Language
SF-2006-	Dr. Mohd. Al-Shayeh	ICS	Measuring Object-Oriented Class Stability

36	Dr. Jarallah Al-Ghamdi Dr. Mohd. Eissa	ICS ICS	
SF-2006-37	Dr. Farag Azzedin Dr. Khalid Salah Dr. M. Ndiaye	ICS ICS SE	Trust Modeling for Peer-to-Peer Systems: Issues and Approaches
SF-2006-38	Dr. Emad A. El-Sebakhy Dr. Sahalu Junaidu Dr. Salaheddin Mohd.	ICS ICS ICS	Roadmap for the Development and Commercialization of New Technology Using Intelligent Systems Approach
SF-2006-39	Dr. Emad A. Sebakhy Dr. Mohd. Al-Shayeb Dr. Tarek El-Basuny	ICS ICS ICS	A Neural Networks Models With Bounded-Weights as a Novel Approach for Forecasting Incomplete Data Imputation in Software Cost assessment
SF-2006-40	Dr. Aref A. Al-Ashban Dr. Sadiq Sohail	Management & Marketing	The Importance of Saudi Firms Marketing & Related Strategies on Their Export Performance
SF-2006-41	Dr. Luai Al-Hadrami Dr. S.M. Zubair	Mechanical Engineering	Design and Operate a Fouling Monitoring Device to Study Fouling in Twisted Tubes
SF-2006-42	Dr. Aimen El-Maleh Dr. Ahmed Yamani	Com. Engineering Elec. Engg.	Test Data Volume Reduction of Scan-Based Deterministic Test Based on Scan Chains Compatibility Using Partitioning and Relaxation
SF-2006-43	Dr. Abdulaziz Bubshait Mr. Jalaluddin	CEM Dept.	Application of Analytical Hierarchy Process (AHP) Method for Engineering Design (EC) Prequalification in SABIC Industrial Construction Projects
SF-2006-44	Dr. S. Al-Quraishi Dr. Nouar Tabet	Physics Physics	Investigation of the Structural and Physical Properties of CN_x Thin Films Obtained by DC Reactive Plasma
SF-2006-45	Dr. Taqi N. Al-Faraj Mr. Shah M. Shariq	Mgt & Mkt	Framework for Evaluation of Productivity and Economic Performance of the GCC Countries
SF-2006-46	Dr. Haider Fraihat Dr. Ibrahim Al-Jabri	Acctg & MIS Acct. & MIS	Utilization of Electronic Payment System by Business Organizations
SR-2006-47	Dr. Aiman El-Maleh Dr. M.A. Landolsi	Computer Engg. Mechanical Eng.	Design and Implementation of Interconnect Efficient Low Density parity Check Error Correcting Codes
SF-2006-48	Dr. Haitham Bahaidrah	Mech. Engg.	Numerical Study of Fluid Flow and Heat Transfer over a Series of in-line Non-circular Tubes Confined in a ParallelPlate Channel
SF-2006-49	Dr. Q.H. Ansari Dr. Soliman Al-Homidan	Mathematical Sci. Mathematical Sci.	Ekeland's Variational Principles for Equilibrium Problems and Their Applications
SF-2006-50	Mr. F. Kandlawala Dr. A. Abdur Rahim	Electrical Eng. Electrical Eng.	Dynamic Analysis and Control Design of a Wind Turbine Induction Generator Unit
SF-2006-51	Dr. Habib Abualhamayel Dr. M.A. Habib Dr. R. Ben-Mansour	Mech. Engg. Mech. Engg. Mech. Engg.	Influence of Burner Inclination Angle and Burner Tripping on Pollution Characteristics in a Tangentially Fired Furnace
SF-2006-52	Dr. H.A. Omar	Aerospace Eng.	Designing a Non-linear Anti-Swing Controller for Helicopter Swing-Lead System Near Hover

SF-2006-53	Dr. E. Ahmed Dr. B.A. Ghandi Dr. A. Al-Jeabaz	ICS ICS ICS	Implementation of Staying Scheme for Web Based Data at Warehousing Applications
SF-2006-54	Dr. Abdelhafid Bouhraoug Dr. Mohd. Mudawar Dr. Mohd. El-Rabba	COE COE COE	Using the On-Chip Advantage in Designing Networks-on-Chip
SF-2006-55	Dr. M. Sadiq Sohail	Mgt. & Mkt.	The Retailing Sector in Saudi Arabia: An Evaluation of Shoppers Attitudes and Preferences
SF-2006-56	Dr. Fouad Alsunni Dr. M. Shafiq Mr. S. Azhar Ali	SE SE SE	Adaptive Control of Multi-Input Multi-Output Nonlinear Systems Based on the U-Model
SF-2006-57	Dr. M.I. Al-Jarallah Mr. Fazal-ur-Rehman	Physics Physics	Indoor Radon Levels and Radon Effective Dose Determination in Hail City of Saudi Arabia
SF-2006-58	Dr. Hesham Al-Fares Dr. Kadir Ertogral	Systems Eng. Systems Eng.	Development of a Metaheuristic for a Mixed Workforce Tour Scheduling Problem with Integrated Shift Design
SF-2006-59	Dr. Faisal Fairag	Mathematical Sci.	Finite Difference Method on Triangulation
SF-2006-60	Dr. Mohammad Samman	Mathematical Sciences	Characterization of Some Classes of Integral Domains Via Semistar Operations
SF-2006-61	Dr. Zuhair Gasem Mr. Mohammad Ahsan	Mechanical Engg. Mechanical Engg.	The Effect of Austenite/Ferrite Ratio on the Fatigue and Corrosion Fatigue Resistance in a Duplex Stainless Steel
SF-2006-62	Dr. H. Bahlouli Dr. A.D. Alhaidari	Physics Physics	New Issues and Problems in Dirac Equation and Their Solutions
SR-2006-63	Dr. Ashraf Elazouni Dr. Abdulaziz Bubshait Dr. Umar Al-Turki Dr. Shokri Selim	CEM CEM SE SE	Finance-based Scheduling of Linear Repetitive Projects Using Genetic Algorithms

8. PUBLICATIONS IN REFEREED JOURNALS REPORTED AFTER JANUARY, 2006

College of Engineering

Civil Engineering

1. "Rheological Investigation of the Influence of Acrylate Polymers on the Modification of Asphalt," **Ibnelwaleed, H.A., Mohammad, I.H., and Al-Abdul Wahhab, H.**, Journal of Applied Polymer Science, March 2006.
2. "Influence of Polymer Type and Structure on Polymer Modified Asphalt Concrete Mix," **Ibnelwaleed, H.A., Al-Abdul Wahhab, H., and Mohammad, I.H.**, Canadian Journal of Chemical Engineering, April 2006.
3. "Effect of Superplasticizer Type on Plastic Shrinkage in Plain and Silica Fume Cement Concretes under Hot Weather Conditions," **Al-Amoudi, O.S.B., Abiola, T.O., and Maslehuddin, M.**, Construction and Building Materials, 2006, in press.
4. "Effect of Geotextile and Cement on the Performance of Sabkha Subgrade," **Aiban, S.A., Al-Ahmadi, H.M., Asi, I.M., Siddique, Z.U., and Al-Amoudi, O.S.B.**, Journal of Building and Environment, Vol. 41, 2006, pp. 807-820.
5. "Prompt Gamma Analysis of Chlorine in Concrete for Corrosion Study," **Naqvi, A.A., Nagadi, M.M., and Al-Amoudi, O.S.B.**, Applied Radiation and Isotopes, 2006, in press.
6. "Measurement of Lime/Silica Ratio Using PGNAA Technique," **Naqvi, A.A., Nagadi, M.M., and Al-Amoudi, O.S.B.**, Nuclear Instruments & Methods in Physics Research (Section A), 2006, in press.
7. "Effect of Geotextile on the Load-Carrying Capacity and Deformation Characteristics of Sabkha Soil," **Aiban, S.A., Siddiqi, Zaki U., Al-Amoudi, O.S.B., Al-Ahmadi, H.M., and Asi, I.M.**, Journal of Geosynthetics, in press.
8. "Durability of Epoxy-Coated Steel Bars in Chloride-Contaminated Concrete," **Al-Amoudi, O.S.B. and Maslehuddin, M.**, Invited Paper, Building Technology (in Arabic), in press.
9. "Characteristics of Aggregates and Their Influence on Concrete Properties," **Maslehuddin, M., Al-Amoudi, O.S.B., Al-Mehthel, M.H., and Al-Idi, S.H.**, Theme Issue on Advances in Concrete Technology and Repair, Arabian Journal for Science and Engineering, in press.
10. "²⁹Si MAS-NMR Study of Hydrated Cement Paste and Mortar with Varying Content of Fly Ash," **Al-Zahrani, M.M., Al-Tayyib, A.J., Al-Dulaijan, S.U., and Osei-Twum, E.**, Advances in Cement Research, Vol. 17, No. 1, 2006, pp. 1-8.
11. "Characteristics of Female Students Traveling to Colleges in Saudi Arabia," **Al-Ahmadi, H.**, Journal of Engineering Research, College of Engineering, Sultan Qaboos University, Vol. 3, No. 1, January 2006, pp. 79-83.

1. "Influence of Branch Content, Comonomer Type, and Crosshead Speed on the Mechanical Properties of metallocene LLDPEs", **Ashraful Islam, Ibnelwaleed A. Hussein, J.** Applied Polymer Science, 100(6), 5019-5033, 2006
2. "Moisture Absorption Behavior of Palm/Polypropylene Composites in Distilled Water and Sea Water", **Kahraman, R. and Abu-Sharkh, B.**, International Journal of Polymeric Materials, 2006 (in press).
3. "Morphology and Conformation Analysis of Self-Assembled Triblock Copolymer Melts". **Abu-Sharkh B., and AlSunaidi A.**, Macromolecular Theory and Simulation, (in press).
4. "Moisture Diffusion into Palm Polypropylene Composites in Sodium Chloride Solutions". **Kahraman, R., and Abu-Sharkh, B.**, Journal of Applied Polymer Science, (in press).
5. "Synthesis and comparative solution properties of single-, twin-, and triple-tailed associating ionic polymers based on diallylammonium salts." **Ali, S. A., Yunusa, U., Abu-Sharkh, B. F., and Al-Muallem, H. A.**, Journal of Polymer Science: Polymer Chemistry, (in press).
6. "Structure and mechanism of the deposition of multilayers of polyelectrolytes and nanoparticles". **Abu-Sharkh, Basel**, Langmuir, (2006), 22(7), 3028-3034.
7. "Structure and mechanism of formation of polyelectrolyte multilayers". **Abu-Sharkh, Basel F**, Polymer (2006), 47(10), 3674-3680.

Electrical Engineering

1. "Error Probability of Coded STBC Systems in Block Fading Environments," **Salam Zummo** and Wayne Stark, IEEE Trans. on Wireless Communications, Vol. 5, No. 5, pp. 972 – 977, May, 2006.
2. "Performance and Iterative Decoding of I-Q Trellis Space-Time Codes," **Salam Zummo** and Wayne Stark, IEE Proceedings on Communications, Vol. 153, No. 2, pp. 233 – 237, April, 2006.
3. "Error Probability of Bit-Interleaved Coded Modulation (BICM) in Rapid Fading Environments," Ping-Cheng Yeh, **Salam Zummo** and Wayne Stark, IEEE Trans. on Vehicular Technology, Vol. 55, No. 2, pp. 722 – 728, March, 2006.
4. "Analytical Solution for Mutual Coupling in Microstrip Patch Antenna Artrays," **Mahmoud M. Dawoud and Meerja K. Amjad**, The Arabian Journal for Science and Engineering, Vol. 31, Number 1 B, April 2006.
5. "A Novel Bandpass Filter Based on Current Feedback Amplifier," **Alzaher, H.**, Analog Integrated Circuits and Signal Processing, Vol. 46, 2006, pp. 145-148.

6. "ORAN System: a basis for an Arabic OCR" **A. Zidouri**, The Arabian Journal for Science and Engineering KFUPM Dhahran Saudi Arabia, April 2006.
7. "Performance of Cavity Backed Inverted Microstrip Broadband Antenna" **Sheikh S.I., Biswas M., Siddique J. Y. and Guha D.**, Indian Journal of Radio & Space Physics, Vol. 35, pp. 54-58, February 2006.
8. "A Novel Bandpass Filter Based on Current Feedback Amplifier," **Alzaher, H.**, Analog Integrated Circuits and Signal Processing, Vol. 46, 2006, pp. 145-148.
9. "Low-complexity Linear Group-SIC Detectors," **A. Bentrchia, A. Zerguine, and A. U. Sheikh**, appearing in Wireless Communications and Mobile Computing, May 2006.
10. "A New Ordering and Grouping Algorithm for the Linear Weighted Group Matched Filter Successive Interference Cancelling Detector," **A. Bentrchia, A. U. Sheikh, and A. Zerguine**, IEEE-Transactions on Vehicular Technology, vol. 55, no. 2, pp. 704-708, March 2006.
11. "Adaptive Chip-Level Channel Estimation for IMT-DS System: DL and UL," **S. Faisal A. Shah and Asrar U. H. Sheikh**, Wireless Personal Communications, Springer, Volume 35, Number 4, 383-405, December 2005.
12. "Application of Smooth Ergodic Hidden Markov Model in Text to Speech Systems," **Armin Ghayoori, Faramarz Hendessi and Asrar U. H. Sheikh**, International Journal of Signal Processing (IJSP), Vol. 2, No. 2, pp. 151-157, October 2005.
13. "Large signal analysis of multiquantum well electroabsorption modulators," **M.T. Abuelma'atti**, Fiber and Integrated Optics, Vol. 25, pp. 75-86, 2006.
14. "A reconfigurable Gaussian/Triangular basis functions computation circuit," **M.T. Abuelma'atti and A. Shwehneh**, Analog Integrated Circuits and Signal Processing, Vol. 47, 2006, pp.53-64.
15. "Thunderstorm distribution and frequency in Saudi Arabia", **M. H. Shwehdi**, published on the Journal of Geophysics and Engineering, J. Geophys. Eng. 2 (2005) Volume 2, Number 3, pp 252–267 September 2005.
16. "Reliable Maps of Lightning Thunderstorms for Saudi Arabia" **M. H. Shwehdi** accepted for publication in the IEEE Transactions on Power Delivery, November 2005.
17. "Speed Control of a 3-Phase Induction Motor Based on Robust Optimal Preview Control Theory," **M. M. Negm, J. M. Bakhawain, M. H. Shwehdi**, published in the IEEE Transactions on Energy Conversion, Vol. 21, No.1, March 2006.

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 19. "Electron spin resonance spectral study of PVC and XLPE insulation materials and their life time analysis,"**M.A. Morsy & M.H. Shwehdi**, Spectrochimica, Acta, Elsevier, Vol. 63/3, pp 624-630.
 20. "Dealing with Harmonic Problems Produced from the Use of Adjustable Speed Drives in Industrial Oil pumping Field", **M. H. Shwehdi** , accepted for publication in the International Journal of Power and Energy Systems-ACTA.
 21. "Development of Authentic Annual and Seasonal Lightning Thunderstorms Day Maps for Saudi Arabia," **M. H. Shwehdi**, accepted for publication in The International Journal of Meteorology (ISSN 1748-2992).
 22. "A Novel Bandpass Filter Based on Current Feedback Amplifier," **Alzaher, H.**, Analog Integrated Circuits and Signal Processing, Vol. 46, 2006, pp. 145-148.
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1. "Suppressing Vibrations of Machining Processes in Both Feed and Radial Directions Using An Optimal Control Strategy: The Case of Interrupted Cutting", **Al-Zaharnah, I.**, 2006, Journal of Materials Processing Technology, 172, 305-310.
 2. "Experimental Investigation of Turbulent Natural Convection Flow in a Channel", **Ayinde, T.F., Said, S.A.M., and Habib, M.A.**, 2006, Heat and Mass Transfer, 42(3), 169-177.
 3. "A Similarity Solution of Fin Equation with Variable Thermal Conductivity and Heat Transfer Coefficient", **Pakdemirli, M. and Sahin, A.Z.**, 2006, Mathematical and Computational Applications, Vol. 11, 1, pp. 25-30.
 4. "An Improved Non-Dimensional Model of Wet Cooling Towers," **Qureshi, B.A., Zubair, S.M.**, 2006, Proceedings of IMechE - Journal of Process Mechanical Engineering, Vol. 220 (E1), pp. 31-41.
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 7. "Effect of sub-micron Al_2O_3 concentration on dry wear properties of 6061 aluminum based composite," **A.M. Al-Qutub, I. Allam, T. W. Qureshi**, 2006, Journal of Materials processing Technology, Vol. 172, 327-331.

8. "Study into mechanical properties of TiN coating on Ti-6Al-4V alloy through three-point bending tests", **Yilbas B.S. , Sunar M. , Gasem Z. , Abdul Aleem B.J., Zainaulabdeen, S. ,** (2006) , Industrial Tribology, Vol. 58, 2, pp. 68-71.
9. "Entropy Generation For Pipe-Flow of A Third Grade Fluid With Vogel Model Viscosity," **Yilbas, B.S., Pakdemirli, M. and Yurusoy, M.,** (2006) Int. J. Non-Linear Mechanics, Vol. 41, pp. 432-437.
10. "Tensile properties of HVOF sprayed Inconel 625 coating subjected to aqueous corrosion environment", **Boudi, A., Hashmi, M.S.J., Yilbas B.S.,** (2006), Industrial Lubrication and Tribology, Vol. 58, pp. 45-49.
11. "Dross formation during laser cutting process", **Yilbas, B.S., and Abdul Aleem, B.J.,** (2006), J. Physics Part D: Applied Physics, Vol. 39 1451-1461.
12. "Entropy generation in a pipe due to non Newtonian fluid flow: Constant viscosity case", **Pakdemirli, M. and Yilbas, B.S.,** (2006) Sadhana, Vol. 31, Part 1, pp. 21-29.
13. "Laser short pulse heating-variable properties case", **Yilbas, B.S., and Shuja, S.Z.,** (2006),J. Physics A, Vol. 364, pp. 87-102.
14. "CO₂ laser cutting of a carbon/carbon multi-lamelled plain-weave structure", **Al-Sulaiman, F.A., Yilbas, B.S., and Ahsan, M.,** (2006) J. Material Processing Technology, Vol. 173, pp. 345-351.
15. "ESEM evaluation of Inconel-625 thermal spray coating (HVOF) onto stainless steel and carbon steel post brine exposure after tensile tests", **Boudi, A., Hashmi, M.S.J., Yilbas B.S.,** (2006) J. Material Processing Technology, Vol. 173, pp. 44-52.
16. "Thermal and Stress Analysis of a Sheet Metal In Welding", **Sunar, M., Yilbas, B.S., and Boran, K.,** (2006), J. Material Processing Technology, Vol. 172, pp. 123-129.
17. "Thermal stress analysis in annular duct resembling turbine gas turbine transition piece", **Mustafa, A.H., Hashmi, M.S.J., Yilbas, B.S., Sunar, M.,** (2006) , J. Material Processing Technology, Vol. 171, pp. 285-294.
18. "HVOF coating of welded surfaces: fatigue and corrosion behaviour of stainless steel coated with Inconel-625 alloy", **Al-Fadhli, H.Y., Stokes, J., Hashmi, M.S.J. and Yilbas B.S.,** (2006), Surface and Coating Technology, Vol. 200, pp. 4904-4908.
19. "The erosion–corrosion behaviour of high velocity oxy-fuel (HVOF) thermally sprayed inconel-625 coatings on different metallic surfaces", **Al-Fadhli, H.Y., Stokes, J., Hashmi, M.S.J., Yilbas B.S.,** (2006), Surface and Coating Technology, Vol. 200, pp. 5782-5788.

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21. "Laser Short Pulse Heating: Electron Excess Energy Dissipation in the Early Heating Period" **Yilbas B.S. and Boran, K.**, (2006), Proc. Inst. Mech. Engrs. Part C: J. Mechanical Engineering Science, Vol. 220, n 1, pp. 95-102.
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2. "Numerical Correlations for Heat Transfer from an Array of Hot-Air Jets Impinging on a 3D Concave Surface", **Fregeau, M., Saeed, F., and Paraschivoiu, I.**, AIAA Journal of Aircraft, Vol. 42, No. 3, May-June 2005 (1426H), pp. 665-670.
3. "Failure Distribution Modeling for Planned Replacement of Aircraft Auxiliary Power Unit Oil Pumps", **Al-Garni, A.Z., Tozan, M., Al-Garni, A.M., and Jamal, A.**, Maintenance Journal, Vol. 19, Feb. 2006 (1427), pp. 60-69.
4. "Failure-Rate Prediction for De Havilland Dash-8 Tires employing Neural-Network Technique", **Al-Garni, A.Z., Jamal, A., Ahmad, A.M., Al-Garni, A.M., and Tozan, M.**, AIAA Journal of Aircraft, Vol. 43, No. 2, March-April 2006 (1427), pp. 537-543.

College of Sciences

Chemistry Department

1. "Equilibrium Constants of the Conformational Inversion and Vibrational Analyses of Vinylfluorogermanes", **W. Förner, H.M. Badawi and Z.S. Seddigi**, Asian Journal of Spectroscopy 9, 1-19 (2005).
2. "Infrared and Raman Spectra and Vibrational Analyses Calculated with Möller-Plesset Perturbation Theory of Second Order of Nitrosoethylene and its Chloro-derivatives", **W. Förner and H.M. Badawi**, Journal of Molecular Modeling 11, 542-550 (2005).
3. "A ^{13}C NMR study of the interactions of Ag^{13}CN and $\text{Ag}(\text{CN})_2^-$ with thiomalic acid, L-Methionine and DL-Seleno-methionine.", **A. A. Isab and M. I. M.**

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4. “Solid and Solution ^{13}C NMR Studies of the Complexation of Ag^+ to the *Trans* Isomer of Captopril: Biological Activities of this High Blood Pressure Drug along with its Ag^+ Complex”, **A. A. Isab and M. I. M. Wazeer**, Spectro.Chim .Acta (A), 65, 191-195 (2006).
5. “Perspectives in bioinorganic chemistry of some metal based therapeutic agents”, **S. Ahmad, A. A. Isab, S. Ali and A. R. Al-Arfaj**, Polyhedron, 25, 1633-1655 (2006).
6. “Hydroformylation of alkyl alkenes catalyzed by rhodium supported on MCM-41: the effect of $\text{H}_3\text{PW}_{12}\text{O}_{40}$ on the catalytic activity and recycling”. **Bassam El Ali, J. Tijani, M. Fettouhi**, J. Mol. Catal., 250 (2006) 153-162.
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41. "Quality of Supply Regulation In-Restructured Power Systems", **Abdeljalil, T., Habiballah, I., & Kassas, M.**, Fourth Power Quality Workshop, Al-Khobar, Saudi Arabia, 29 March, 2006.
42. "A Simulator for Single Phase Induction Motor-Converter Performance", **Ben amor L, Belhadj C. A., El Ferik S., Hussain A. S.**, Accepted The Sixth IASTED International Conference European Power and Energy Systems EuroPES 20006,

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46. "How Much Does Transmit Correlation Affect the Sum-Rate of MIMO Downlink Channels?" **Al-Naffouri, Tareq Y.**, Masoud Sharif, And Babak Hassibi., IEEE International Symposium on Information Theory, Seattle, Washington, July 2006.

Mechanical Engineering Department

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2. "Effect of Scandium Doping on the Mechanical and Corrosive Characteristic of Al-Mg Alloys", **Zaki, A., B.J. Aleem & Abbas, M.**, (March 20-21 2006), University of Sharjah.
3. "Modelling of HVOF coating deposit applied over different metallic surfaces and tested in highly corrosive environments". **Al-Fadhli, H., Stokes, Y.J., Hashmi, M.S.J., Yilbas, B.S., Taie, I., and Mehta, S.**, (February 26-March 01, 2006), 11th Middle East Corrosion Conference.
4. "Laser gas assisted nitriding of Ti-6Al-4V alloy: surface properties", Conference on Applications of Traditional and High Performance Materials in Harsh Environments", **B.S. Yilbas, C. Karatas, Uslan, O. Keles, I., Y. Usta and M. Ahsan**, (March 20-21, 2006) Sharjah, UAE.
5. "Multi-Dimensional Effects in Estimating the Heat Loss Across Building Envelopes" **M. A. Antar** (January 3–6, 2006) , Proceedings of the Second International Conference on Thermal Engineering Theory and Applications, Al-Ain, UAE.

Petroleum Engineering Department

1. "Identification of Hydrocarbon Moveability and Type from Resistivity Logs" **G.M. Hamada**, the 2006 SPE KSA Technical Symposium, May 21 – 23, 2006, Dhahran.

Aerospace Engineering Department

1. “Experimental and Numerical Investigation of 65-deg Delta and 65/40-deg Double-Delta Wings”, **Al-Garni, A.Z., Saeed, F., Al-Garni, A.M., and Kassem, A., and Abdullah, A.**, presented at the 44th AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, USA, Jan. 2006 (1427H).
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College of Sciences

Earth Sciences Department

1. “Depositional Environment and Reservoir Characteristics of Lower and Upper Dibsiyah Member (Wajid Sandstone), Southwest Saudi Arabia”, **Ibrahim Taiwo Abdulkadir, Osman M. Abdullatif and Ali Sahin.** 7th Middle East Geosciences Conference and Exhibition (GEO 2006), Manama, Bahrain, March 27-29, 2006.
2. “Outcrop Analog For a Paleozoic Shallow Marine Sandstone Reservoir: Geological and Geostatistical Models of Quwarah Member, Saudi Arabia”, **Osman M. Abdullatif, Mohammed H. Makkawi and Fadhel Al-Khalifah,** 7th Middle East Geosciences Conference and Exhibition (GEO 2006), Manama, Bahrain, March 27-29, 2006.
3. “Fracture Porosity Inversion from P-Wave AVOA Data along 2-D Seismic Lines”, **Abdullatif Abdulrahman Al-Shuhail,** 7th Middle East Geosciences Conference and Exhibition (GEO 2006), Manama, Bahrain, March 27-29, 2006.
4. “Sedimentology and Reservoir Characteristics of Yabus and Samaa Formations (Tertiary), Agordeed Belt, Adar Yale Field, Melut Rift Basin, Sudan”, **Amani A. Badi, Osman M. Abdullatif, Omer B. Ali and Abdalla G. Farwa,** 7th Middle East Geosciences Conference and Exhibition (GEO 2006), Manama, Bahrain, March 27-29, 2006.
5. “Stratigraphic Relationship of the Exposed Wajid, Saq and Qasim Formations in Western Saudi Arabia: A Geochemical and Statistical Approach”, **Mahbub Hussain and Osman Abdullatif,** 7th Middle East Geosciences Conference and Exhibition (GEO 2006), Manama, Bahrain, March 27-29, 2006.
6. “Linking Diagenesis and Porosity Preservation to Sequence Stratigraphy of Reservoir Sandstones in the Jauf Formation (Lower Devonian), Eastern Saudi Arabia”, **Khalid Al-Ramadan, S. Morad, Kent Norton and Michael L Hulver** , 7th Middle East Geosciences Conference and Exhibition (GEO 2006), Manama, Bahrain, March 27-29, 2006.

Mathematical Sciences Department

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2. "What is the next term of a sequence", **A. Umar and B. Yushau**, UAE Math Day, University of Sharjah, UAE, April 27, 2006.
3. "Numerical integration using MS Excel", **El-Gebeily, M. and Yushau, B**, In Stewart, S.M., Olearski, J.E. and Thompson, D. (Eds), Proceedings of the Second Annual Conference for Middle East Teachers of Science, Mathematics and Computing, pp. 59-63). METSMaC: Abu Dhabi (2006).
4. "Boundary stabilization of a system of thermoelasticity type III", **Messaoudi, S.A. and Said-Houari B.**, the fourth UAE Math Day, Sharjah, April 27, 2006,
5. "On Decay of solutions in an abstract integro-differential equation", **Messaoudi, S.A.**, Workshop on Abstract and Ordinary Differential Equation, Tipaza, Algeria, May 13-18, 2006,
6. "General Decay of solutions of a semilinear viscoelastic equation", **Messaoudi, S.A.**, the 6th AIMS conference on dynamical systems, differential equations and applications, June 25-28, 2006.
7. "The Coprime Topology for Corings", **J. Abuihlail**, Algebras and Coalgebras-Tools for Geometry, Physics and Computer Science, Cairo, Egypt, March 25-30, 2006.
8. "The Effects of the Preparatory Year Courses to students performance in First Calculus Course at University", **B. Yushau, M.H. Omar and H.S. Al-Attas**, in proceedings on the Middle East Teachers of Mathematics, Science and Computing (MetsMac), March 14-16, 2006.
9. "The problems of Word Problems in Mathematics Classroom for Students acquiring English as a Second Language", **B. Yushau, M.H. Omar and M.R. Alaimia**, In proceedings of the Fourth UAE Day, University of Sharjah, UAE, April 27, 2006.
10. "Semicorings and Semicomodules", **J. Abuihlail**, Fourth UAE Math Day, Univ. of Sharjah, UAE, April 27, 2006.

Physics Department

1. "A Nondestructive Testing: Natural Gamma-Rays Spectroscopy", **Aksoy**, 2nd International IMS Conference On: Applications of Traditional and High Performance Materials in Harsh Environments, March 20-21, 2006, American University of Sharjah, UAE.

2. "Special Functions in Physics and Applied Mathematics" **H. Bahlouli**, 17 April, 2006, KACST, Riyadh, Saudi Arabia.
3. "Organ Dosimetry for a Worker Standing Under a 132 kV Power Line", N. **Maalej**, T. K. Abdel-Galil, M. Arif. Abdul-Majeed and I. O. Habiballah. World Congress of Medical Physics and Biomedical Engineering, 2006, S. Korea.
4. "Air Gap Effect on Mammography Image Quality", N **Maalej**, **M A Al Kafi**, **A. Nobah**, **A A Naqvi**. World Congress of Medical Physics and Biomedical Engineering, 2006, S. Korea.
5. "Neutron Dose Calculation for an Accelerator-Based BNCT Setup", **B. A. Elshahat** , **A. A. Naqvi**, **N. Maalej** and **A Khalid**. 15 Radiological Conference , 2006. Czeck Republic.
6. "Surface Dose Measurement in 6 MeV X-ray Beam Using Radiographic Film and TLD" H. Gamdi, **N. Maalej**. 48 AAPM Conference, 2006, USA.
7. "Optimization of Mammography Linear Grid Geometry", **M A Al Kafi**, **N Maalej**, **A A Naqvi**, 48 AAPM Conference, 2006, USA.
8. "Comparison of Five Different Methods for Obtaining the Modulation Transfer Function of a Diagnostic X-ray Machine", **A Al-Dhukair**, **N. Maalej**, World Congress of Medical Physics and Biomedical Engineering, 2006, S. Korea.
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10. "Nanostructured Zinc Oxide: Synthesis and Properties", **N. Tabet**, International Conference on MEMS and Nanotechnology, ICMN06, 14-15 March, 2006, Kuala Lumpur, Malaysia.
11. "Optical emission characteristics of glow discharges in Ar-O₂ and He-O₂ gas mixtures", **A. Al-Jalal** and **M. A. Khan**, 22nd Symposium on Plasma Physics and Technology, Prague, Czech Republic 26. - 29. June 2006.
12. Photoacoustic and laser induced breakdown spectrometry and its applications in the field of environment, S. Abdulmajeed, T. Hussain, **M. A. Gondal** and **Z. H. Yamani**, Saudi Physics Assembly, Dhahran, May, 2006, Saudi-Arabia.

College of Computer Sciences and Engineering

Information & Computer Science

1. "MPLS Network Topology Design Using Genetic Algorithms," **E. El-Alfy**, Proc. of the IEEE International Conference on Computer Systems and Applications, pp. 1059–1065, March 2006.
2. "Finding Reasons and Conclusion in a Basic Computer Science Course", **Kanaan A. Faisal, Ahmed H. Bagais, M.R.K. Krishna Rao**, to appear in Proc. of International Conference on Frontiers in Education: Computer Science and Computer Engineering, FECS'06, June 2006.
3. "Face Recognition Using a Gabor Filter Bank Approach", **W. Boukabou, L. Ghouti and A. Bouridane**, Accepted for publications in the proceedings of the IEEE International Conference on Adaptive Hardware and Systems (IEEE-AHS'06), Istanbul, Turkey, June 2006.
4. "A Robust Perceptual Audio Hashing Using Balanced Multiwavelets", **L. Ghouti and A. Bouridane**, Accepted for publications in the proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP-06), Toulouse, France, May 2006.
5. "Machine Learning-Based Adaptive Load Balancing Middleware Framework for Distributed Object Computing", **Tarek Helmy, S. A. Shahab**, Springer LNCS Volume 3947, pp. 488 - 497, ISBN: 3-540-33809-8.x
6. "A Priority-Based MFQ Scheduler for CPU Power Saving", **Muhammad Kashif, Tarek Helmy, Emad El-Sebakhy**, IEEE Proceedings of the 4th International Conference on Computer Systems and Applications (AICCSA-06), pp. 130-134, Dubai 3-11 March 2006, UAE.
7. "Learnability of term rewrite systems from positive examples", **M.R.K. Krishna Rao**, Proc. of Computing: The Australasian Theory Symposium, CATS'2006, Australian Computer Society (ACS) Conferences in Research and Practice in Information Technology (CRPIT) Volume 51, pp. 133-137.
8. "Infusing Critical Thinking Skill Compare and Contrast into Content of Data Structures Course", **M.R.K. Krishna Rao, M. Shafique, K. Faisal, A. Bagais**, to appear in Proc. of International Conference on Frontiers in Education: Computer Science and Computer Engineering, FECS'06, June 2006.
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10. "Evaluation of Breast Cancer Tumor Classification with Unconstrained Functional Networks Classifier", **Emad A. El-Sebakhy, K. Faisal, T. El-Bassuny, F. Azzedin, and A. Al-Suhaim**, 4th ACS/IEEE International Conference on Computer Systems and Applications. 281-287.

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12. "VLSI Design IP Protection: Solutions, New Challenges, and Opportunities", **L. Yuan, G. Qu, L. Ghouti and A. Bouridane**, Accepted for publications in the proceedings of the IEEE International Conference on Adaptive Hardware and Systems (IEEE-AHS'06), Istanbul, Turkey, June 2006.
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4. "Warning and Monitoring Medical System using Sensor Networks," **Tarek Sheltami, Ashraf Mahmoud, Marwan Abu-Amara**, the Saudi 18th National Computer Conference (NCC18), Riyadh, Saudi Arabia, pp. 63-68, 26-29 March, 2006.
5. "WLAN Integration For Future Generation Mobile Network Operators – A Case Study," **Ashraf Mahmoud, Marwan Abu-Amara, Tarek Sheltami, Ejaz Rahman, and Junaid Jaffar**, the Saudi 18th National Computer Conference (NCC18), Riyadh, Saudi Arabia, pp 47-54, 26-29 March, 2006.
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11. "On Optimizing Backoff Procedure to Enhance Throughput and Fairness for Wireless LANs", **Adel AlAkeel, Ashraf Mahmoud, and U. Baroudi**, IEEE 2nd ICTTA, Damascus, Syria, 24-28 April, 2006.
12. "Adaptive QoS-Based Scheduler for 4G CDMA Wireless Networks", **U. Baroudi, Yousuf Mohammed, and Ashraf Mahmoud** IEEE 2nd CITTA, Damascus, Syria, 24-28 April, 2006.
13. "The Mobile Patient: A Case Study Implementation and Analysis for SNET," **T. R. Sheltami, and A. S. Mahmoud**, the 22nd Biennial Symposium on Communications, Queen's University, Kingston, ON, Canada, pp 445-448, 29 May 1 June, 2006.
14. "Predicting Log Properties from Seismic Data Using Abductive Networks," **O. A. Ahmed, R. E. Abdel-Aal, and H. AlMustafa**, GEO 2006 Middle East Conference and Exhibition, Manama, Bahrain, 27 – 29 March, 2006.
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17. "An Enhanced Estimator to Multi-objective OSPF Weight Setting Problem", **Mohammed H. Sqalli, Sadiq M. Sait, and Mohammed Aijaz Mohiuddin**, The 10th IEEE/IFIP Network Operations and Management Symposium (NOMS-2006), Vancouver, Canada, April 3-7, 2006.

18. “A Locked Cache-Based Synchronization Protocol for CMP”, **Ihab Ismail, K. El-Ayat, and M. Mudawar**, in proceedings of the 2006 International Conference on Parallel and Distributed Processing Techniques and Applications, Las Vegas, Nevada, USA, June 26-29, 2006.

Systems Engineering Department

1. “Novel Peak Detection Algorithms for Pileup Minimization in Gamma Ray Spectroscopy”, **M.W. Raad and L. Cheded**, IEEE Instrumentation and Measurement Technology Conference, IMTP 2006 24-27 April 2006, Sorento, Italy.
2. “Conceptualization and Implementation of a Center of Entrepreneurial Development for Nurturing Small Business in the MENA Region”, **T. Ayar and M.S. Oukil**, 4th International Forum on Engineering Education – IEEE 2006 Integrating Teaching and Research with Community Service, April 25-27, 2006, Sharjah, UAE
3. “Stakeholders Integrations in Higher Education: Supply Chain Approach”, **U.M. Al-Turki, S.O. Duffuaa, T. Ayar and O. Demirel**, 4th International Forum on Engineering Education – IEEE 2006 Integrating Teaching and Research with Community Service, April 25-27, 2006, Sharjah, UAE
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5. “A Novel Internal Model Control for Adaptive Tracking of Nonlinear Dynamic Plants”, **T. Khan and M. Shafiq**, 1st IEEE Conference on Industrial Electronics and Applications, May 24-26, 2006, Singapore.
6. “U-Model Based Adaptive Tracking Scheme for Unknown MIMO Bilinear Systems”, **S.S.A. Ali. F. Al-Sunni and M. Shafiq**, 1st IEEE Conference on Industrial Electronics and Applications, May 24-26, 2006, Singapore.\
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10. “Benchmarking King Fahad University Community Service with Leading Universities”, **S. O. Duffuaa, U. M. Al-Turki**, 4th International Forum on Engineering Education – IEEE 2006 Integrating Teaching and Research with Community Service, April 25-27, 2006, Sharjah, UAE.
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12. “L2-Gap-Metric-Based Identification Algorithms for Linear Feedback Systems”, **S. H. Al-Amer**, IASTED International Conference on Modeling, Identification and Control MIC2006, Lanzarote, Spain, pp. 478-783, February 2006
13. “Blood Pressure and Sugar Measurement and Monitoring System in Saudi Arabia”, **M. A. Al-Dajani**, Saudi e-Health Conference, Riyadh, KSA, 2006.
14. “Optimum Location of Banking Automatic Teller Machines”, **M. A. Dajani, H. K. Al-Fares**, CAIMS-MITACS 2006 Joint Annual Conference, Toronto, Canada, June 15-20, 2006.
15. “Efficient Power-of-Two Quantization in Decision Feedback Equalization”, **M. A. Dajani**, IEEE ICASSP, Toulouse, France, May 14-19, 2006.

College of Environmental Design

Architecture Department

1. “A computational system for enriching discovery in architectural design”, **Reffat, Rabee M.**, Proceedings of CAADRIA 2006, Computer Aided Architectural Research in Asia, Kumamoto, Japan, April 2006, pp. 169-177.
2. “Developments of e-learning in design and architectural education”, **Reffat, Rabee M.**, Proceedings of ICODE2006, International Conference of Distance Education, Muscat, Oman, March 2006, CD Proceedings.
3. “Fostering community participation in the development of sustainable housing development using virtual environments”, **Reffat, Rabee M.**, The First Symposium of Charitable and Affordable Housing in Saudi Arabia, Khobar, Saudi Arabia, April 2006.
4. “Incorporating Life Style Theories into an Inquiry Process for Affordable Housing in Saudi Arabia”, **Salama, Ashraf** (2006). . First Symposium on Charitable and Affordable Housing. Al Ber Charity and College of Architecture and Planning, King Faisal University, Meridian, Khobar, Saudi Arabia (April 2006).

5. “A Critical Perspective for Integrating the Trans-disciplinary Paradigm into a Comprehensive Understanding of Sustainable Affordable Housing”, **Salama, Ashraf & Alshuwaikhat, Habib** (2006). . Jeddah International Urban Forum and Exhibition: Urbanism and Sustainability in a Changing World. Jeddah, Saudi Arabia (April 2005).
6. “Architecture as Language of Peace Seminar”, **Salama, Ashraf** (2006). College of Architecture and Planning, University of Napoli-Naples – Federico II, Napoli, Italy (January 2005). Four lectures involved the following topics: Inquiry based Architectural Design: Directions for the Future; Socio-Cultural Factors in Housing Design; Non-Verbal Voices from the Arab World: Identity and Meaning in Contemporary Arab Architecture; Architectural Design pedagogy: Changing Perspectives in a Changing World; and the Learning Environment: Shaping and Coloring a Bright Future.

Architectural Engineering Department

1. “Fire Safety Evaluation of Motor Fuel Dispensing Facilities”, **Hassanain, M., and Al-Mudhei, A.**, Structural Survey, Vol. 24, No. 1, 2006, pp. 65-76.
2. “A Systematic Approach for Fire Safety Audit in Health-care Facilities”, **Hassanain, M., and Saif, M.**, Architectural Science Review, Vol. 49, No. 2, pp. 1-7.
3. ”Effect of Sulphate Contamination on Chloride-Binding Capacity of Plain and Blended Cements” , **Dehwah, H. A. F.**, Journal of Advances in Cement Research Vol. 18, No. 1, January 2006, pp. 7-15.

City & Regional Planning Department

1. “Saudi Workers Security Or Insecurity? The Government Response & Policies to the Uncertain Future of Unemployment”, **Aldosary, Adel S.**,” Asian Association of Social Work Conference, 27-30 April, 2006, United International College, Beijing Normal University-Hong Kong Baptist University, BNU Zhuhai Campus, Zhuhai, Guangdong, China.
2. “Infrastructure Planning The High-Tech Way- The King Fahd University of Petroleum & Minerals GIS- Based Digital Master Plan”, **Aldosary, Adel S.**,” 6th Annual Power Transmission & Distribution Forum, IIR, May 27-30, 2006, Dubai, UAE.
3. “A Critical Perspective for Integrating the Trans-disciplinary Paradigm into a Comprehensive Understanding of Sustainable Affordable Housing”, **Salama, Ashraf & Alshuwaikhat, Habib** (2006). Jeddah International Urban Forum and Exhibition: Urbanism and Sustainability in a Changing World. Jeddah, Saudi Arabia (April 2005).

College of Industrial Management

Finance & Economics Department

1. “Empirical Tests of Purchasing Power Parity of Select ASEAN Economies: An Application of Long Run Structural Modeling with I(1) Exogenous Variables”, **Mansur Masih** and Che Ani Mad, 6th Annual Hawaii International Conference on Business, Honolulu, Hawaii, USA, 25-28 May, 2006.
2. “Examining the Long-Run Relation among Spot Prices of Crude Oil and Natural Gas”, **Imad Jabir**, 29th International Association for Energy Economics International Conference, Postdam, Germany, 7-10 June, 2006.

10. BOOKS PUBLISHED AND CONTRIBUTIONS

Aerospace Engineering

1. US patent “Hybrid Cooling System & Method for Cooling Electronic Devices” **Ahmed Z. Al-Garni, and. Muhammad A. Hawwa**, 1427H (2006G).

Mathematical Sciences Department

1. “An Introduction to Functional Analysis with Applications”, **A.H. Siddiqi, K. Ahmad and P. Manchanda**, First Edition, New Delhi, London, Anamaya, 2006 [ISBN:ISB 81-88342-65-3].
2. “First Course in Differential Equations with Application”, **A.H. Siddiqi and P. Manchanda**, First Edition, Bangalore-New Delhi-Chennai, McMillan, 2006. [ISBN: 1403-93018].
3. “Modern Mathematical Methods, Models and Algorithms”, **A.H. Siddiqi, I. Duff, and O. Christensen**, New Delhi, London, Anamaya, 2006.

Information & Computer Science

1. “A New Approach to Corner Detection”, **Sarfraz, M., Asim, M.R. and Masood, A.** in *Computer Vision and Graphics*, Eds.: Konrad Wojciechowski, Bogdan Smolka, Henryk Palus, Ryszard S. Kozera, Władysław Skarbek, Lyle Noakes, Springer Verlag, ISBN: 1-4020-4178-0, 528 – 533.
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Computer Engineering Department

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[1153&sku=C4657&pc=](#)

Finance & Economics Department

1. “Saudi Business Cases in Managerial Economics”, **M. A. Al-Sahlawi and Y.A. Umar** King Fahd University of Petroleum & Minerals, Printing Press, Dhahran, 31261, Saudi Arabia, 2005 ISBN 9960-07-215-0

11. TECHNICAL REPORTS, FUNDED PROJECTS AND PATENTS

College of Engineering

Civil Engineering Department

1. "Causes of PVC Failure in Riyadh Water Network," **Husain, I., Merah, N., Al-Gahtani, H., and Shamshad, A.,** Final Report submitted to SABIC, February, 2006.
2. "Networking and Capitalization of KFUPM Alumni," **Bader, M., Al-Gahtani, H., Al-Zahrani, M., and Khan, S.,** First Report submitted to KFUPM Strategic Plan Committee, June 2006.

Chemical Engineering Department

1. "Corrosion Investigation of Stainless Steel and Stainless Steel Clad Reinforcing Bars for Utilization in Corrosive Environment of Saudi Arabia", **Kahrman, R., Al-Zahrani, M., Rahman, S. and Al-Dulaijan, S.,** Research Proposal for KFUPM Grant, Approved (2006).

Electrical Engineering Department

1. "Rate Compatible Low Density Parity Check Codes for Wireless Networks," **S. A. Zummo, M.A. Landolsi and S.F. Zaheer,** Final Report, KFUPM FT Project 2004/05, Deanship of Graduate Studies and Scientific Research, King Fahd University of Petroleum & Minerals, April 2006.
2. "Power Systems Stability Enhancement Using Unified Power Flow Controllers," **M.A. Abido, Y.L. Abdel-Magid and Ali T. Al-Awami (Authors),** KFUPM Project # EE/POWER/282, Deanship of Scientific Research, King Fahd University of Petroleum and Minerals, Final Report April 1, 2005 – June 30, 2006.
3. "Environmental Effect on Polymer Insulator Properties", **Ibrahim O. Habiballah, K. Al-Soufi and Z. Al-Hamouz (Authors),** 2nd and 3rd Progress Reports, Saudi Electricity Company, Riyadh, June & Oct. 2004.
4. "Environmental Effect on Polymer Insulator Properties ", **I.O. Habiballah, K. Al-Soufi, Z. Al-Hamouz, and T. Abdeljalil** 4th Progress Report, Saudi Electricity Company, Riyadh, Jan. 2005.
5. "Electric and magnetic Field Guideline Evaluation and Magnetic Field Exposure for Live-Line Workers ", **I.O. Habiballah, K. Al-Soufi, M. Dawood, H. Masoudi, M. Arif, C. Belhaj, and N. Maalej** 2nd and 3rd Progress Reports, Saudi Electricity Company, Riyadh, June & Sep. 2004.

6. “Electric Energy Production Costing for the Saudi Electricity Section Phase I”, **I. El-Amin, I.O Habiballah, A. Al-Shehri, Y. Abdel-Magid, M. Kassas**, ", Progress and Final Reports, Electricity Services Regulatory Authority, Riyadh in April 2004 & May 2005.
7. “Consortium for Establishing Central Electrical Testing Laboratory”, **A. Shash, I.O Habiballah, K. Al-Soufi, and Z. Al-Hamouz** 1st Progress Report, May 2005.
8. “Automatic Text Recognition: A Need in Arabization,” **A. Zidouri and M. Sarfraz**, **Final Report**, Research Project EE/Autotext/232, February 2006.

Aerospace Engineering

1. “Aerodynamic Performance and Longitudinal Stability Analyses of Delta and Double-Delta Wing Configurations”, **Al-Garni, A.Z., Saeed, F., and Al-Garni, A.M.**, Final Report KFUPM Project No. FT-2004-08, May 2005 (1426H).

College of Sciences

Chemistry Department

1. “The Conversion of Waste Plastics/Petroleum Resid Mixtures to Transportation Fuels”, **M. F. Ali and M. N. Siddiqui**, Chapter 14, p. 363-380, in Feedstock Recycling and Pyrolysis of Waste Plastics: Converting Waste Plastics into Diesel and Other Fuels, edited by J. Scheirs and W. Kaminsky, John Wiley & Sons, Ltd: UK, March 2006.
2. “Deep Desulphurization of Gasoline and Diesel Fuels Using Non-Hydrogen Consuming Techniques”, **M. F.; Al-Malki, A.; El-Ali, B.; Martinie, G. and Siddiqui, M. N**, Fuel, Volume 85, Issue No. 10-11, 2006, p. 1354

Earth Sciences Department

1. "Developing Fuzzy Logic Modeling Capability", **Abdulraheem, A. (Project Manager), Al-Majed, A.A., Al-Sabakhi, E., Korvin, G., Awal, M.R., Arifullah, V., Ahmad, M., Raharja, I., Siddiqui, A., Muqtadir, A.** Final Report, SAUDI ARAMCO Project CPM2252 June, 2006.

Mathematical Sciences Department

1.	“Some Useful Integrals and Their Applications in Correlation Analysis”, A. H. Joarder , Technical Report # 338, (Nov 2005).
2.	“A Bivariate Integral Based on Wishart Distribution”. A. H. Joarder , Technical Report # 339, (Dec 2005).
3.	“Procedural Approach to Sketching Graphs Using MS Excel” M.A. Gebeily and Balarabe Yushau , Technical Report # 340, (Dec. 2005).

4.	"Moments of the Product and Quotient of Two Correlated Chisquare Random Variables", A. H. Joarder , Technical Report # 341, (Dec 2005).
5.	"Probability Issues in Without Replacement Sampling", A. H. Joarder and W. S. Al-Sabah , Technical Report # 342, (Dec. 2005).
6.	"The Remainder Method for Sample Percentile", A. H. Joarder and M. R. Abujiya , Technical Report # 343, (Jan 2006.).
7.	"Family of estimators of mean, ratio and product of a finite population using random nonresponse", Singh, H.P., Chandra, P., Joarder, A.H and Singh, S. , Technical Report # 344, (Mar 2006).
8.	"An introduction to the Bivariate T-distribution", Joarder, A.H. , Technical Report # 345 (Mar 2006)
9.	"Moments of the Bivariate T-Distribution", A. H. Joarder , Technical Report # 346, (Mar 2006).
10.	"Standardized Moments of Bivariate Distributions", A. H. Joarder , Technical Report 347, (Mar 2006).
11.	"Investigating the Role of the Preparatory Year Program Courses as Predictors of First Calculus Course Grade: A Longitudinal Study", B. Yushau and M. H. Omar , Technical Report # 348, (May 2006).
12.	"On the distribution of norms of spherical distributions" Joarder, A.H. and Walid S. Al-Sabah , Technical Report # 349, (May 2006).
13.	"Mahalanobis Moments of the Bivariate Chisquare Distribution Distribution", A. H. Joarder , Technical Report # 350, (May 2006).
14.	"Characterizations of Alpha-Weakly Continuous Mappings" R. M. Latif , Technical Report # 351, (May 2006).
15.	"Contra-Gamma-Continuous Mappings in Topological Spaces", R. M. Latif , Technical Report # 352, (May 2006).
16.	"Characterizations of Alpha-Ideal-Open Sets and Alpha-I-Continuity" R. M. Latif , Technical Report # 353, (May 2006).
17.	"A modest introduction to uncorrelated T-Model", Joarder, A.H. and Kibria, B.M.G , Technical Report # 354, (Mar 2006).

Physics Department

1. Optimizing Mammography Grid Design and Imaging Geometry for Tumor Detection", **N. Maalej**, KFUPM Fast Track Project.

2. “Establishing Entrepreneurial and Value-added programs”, **N. Maalej**, KFUPM Strategic Plan Project.
3. “Investigation of the effect of the preparation conditions on the properties of barium cuprate thin films obtained by dc magnetron sputtering technique” SABIC Research Project: **M. Faiz** (PI), **N. Tabet** (Co-I): Status: In Progress.
4. “DC-Magnetron sputtering Synthesis and characterization of the physical properties of Zinc oxide thin films” **N. Tabet** (PI), **A. Mekki**, K. Mezghani (CoI’s), KFUPM funded Project, In Progress.
5. “Heat treatments using a modified Kitchen microwave”, **S. Quraishi and N. Tabet**, funded by College Grants, In Progress.
6. “Properties of CNx thin films obtained by DC magnetron reactive Plasma”, **S. Quraishi and N. Tabet**, SABIC proposal, submitted, Nov. 2005.
7. “Mesoscale Simulations of the Response of Liquid Crystal Molecules to External Aligning Fields” KFUPM - INT-283 **A. Al-Sunaidi** (PI) **H. Bahlouli** (Co-I) between 04/05 and 04/07.
8. “Density of States Associated with a Finite Hamiltonian Matrix” **Abdelmonem** (PI), **Al-Haidari** (Co-I) and **Bahlouli** (Co-I) Fast Track: FT-2005/11 between 9/05 and 9/06.
9. “Laser photolysis-glow discharge hybrid system for regeneration of coked refinery catalyst”, Saudi Aramco project Phys2247, in progress **A. Al-Jalal and M. A. Khan** (P.I.).
10. “Mesoscale Simulations of the Response of Liquid Crystal Molecules to External Aligning Fields” University funded project: INT-283, **A. Al-Sunaidi** (PI) **H. Bahlouli** (Co-I) between 04/05 and 04/07.
11. “Determination of Drag-Reducing Polymer Agent for Fuel Samples and Crude Oils Using Laser Technology” PHYS 2268 with Aramco, **Ezzat Hegazi** (PI) **Husain Masoudi**(Co.I.).
12. Fast Track: FT-2005/11 Entitled” Density of States Associated with a Finite Hamiltonian Matrix “ **M. Abdelmonem** (PI), **A. Al-Haidari** (Co-I) and **H. Bahlouli** (Co-I) between 9/05 and 9/06.

Technical Report

1. “Premedical Academic Program at KFUPM” **N. Maalej**

College of Computer Science & Engineering

Information & Computer Science Department

1. "Message Authentication Using Block and Random Factorization," **M. K. Ibrahim and L. Ghouti.**
2. "Message Authentication Code using Blind Factorization and Blind Randomization," **M. K. Ibrahim and L. Ghouti.**
3. "Message Authentication Code using Elliptic Curve Cryptography", **M. K. Ibrahim and L. Ghouti.**
4. "Message Authentication Code using Elliptic Polynomial Cryptography", **M. K. Ibrahim and L. Ghouti.**
5. "Hash Functions using Elliptic Curve Cryptography", **M. K. Ibrahim, L. Ghouti, and A. Al-Najjar.**
6. M. K. Ibrahim, L. Ghouti, and A. Al-Najjar, "Hash Functions using Elliptic Polynomial cryptography", **M. K. Ibrahim, L. Ghouti, and A. Al-Najjar.**
7. "Message Authentication Code using Elliptic Polynomial Cryptography with Elliptic Polynomial Hopping", **M. K. Ibrahim, L. Ghouti, and A. Al-Najjar.**
8. "Hash Functions using Elliptic Polynomial Cryptography with Elliptic Polynomial Hopping", **M. K. Ibrahim, L. Ghouti, and A. Al-Najjar.**
9. "Content Retrieval from Multimedia Databases Using Perceptual Hashing", **L. Ghouti.**
10. "Data Hiding Capacities for Non-Redundant Complex Wavelets", **L. Ghouti.**
11. "Shoeprint Matching and Retrieval Using Directional Filter Banks", **L. Ghouti.**

Computer Engineering Department

1. "Predicting Log Properties from Seismic Data Using Abductive Networks," **O. A. Ahmed and R. E. Abdel-Aal**, Final Report, Project CPM 2247 for Saudi Aramco, January 2006.

College of Industrial Management**Finance & Economics Department**

1. “Estimation of long-run demand for money: an application of long-run structural modelling to Saudi Arabia”, **Ibrahim Gahtani** and **Mansur Masih**, completed research project funded by KFUPM Special Research Grant, April 2006
2. “Empirical test of the long-run Fisher effect: An application of the ARDL Bounds technique to Saudi Arabia”, **Mohsen Hajji**, **Mansur Masih** and **Yakubu Umar**, completed research project funded by KFUPM Special Research Grant, April 2006
3. “Causality between financial development and economic growth: An application of vector error-correction and variance decomposition methods to Saudi Arabia”, **Ali Elg**, **Haider Madani** and **Mansur Masih**, completed research project funded by KFUPM Special Research Grant, April 2006
4. “The Impact of the monetary policy on deposit and lending rates in the industrial countries versus the developing countries: An application of autoregressive distributed lag approach”, **Bassam Hamdan** and **Mansur Masih**, completed research project funded by KFUPM Special Research Grant, April 2006

12. SEMINARS OFFERED BY KFUPM FACULTY

Civil Engineering Department

1. "How to Make a Presentation Utilizing the Latest Technologies," **Dr. Talat Bader**, CE Seminar, KFUPM, 28 February, 2006.
2. "Earthquake: A Geo-hazard," **Dr. Talat Bader**, CE Seminar, KFUPM, 14 March, 2006.
3. "Performance-based Asphalt Binder Specifications and Materials for the Gulf Countries," **Prof. Hamad I. Al-Abdul Wahhab**, CE Seminar, KFUPM, 21 March, 2006.
4. "Comparative Study of EE2 and Polybilt Modified Asphalt Concrete," **Mr. M. Ghouse Baig**, CE Seminar, KFUPM, 28 March, 2006.
5. "Applications of the Artificial Intelligence in Traffic Engineering," **Mr. Isam Abaker**, CE Seminar, KFUPM, 4 April, 2006.
6. "Photocatalytic Degradation of Industrial Wastewater," **Mr. Sikder Selimuzzaman**, CE Seminar, KFUPM, 4 April, 2006.
7. "New Prefab Panel as a Deck Slab," **Mr. Abd El Fattah Darwish**, CE Seminar, KFUPM, 11 April, 2006.
8. "Repair of Concrete Structures," **Mr. Dejaa Aldeen Nassani**, CE Seminar, KFUPM, 11 April, 2006.
9. "Anchor Block Optimization," **Mr. Zakariya Al-Helal**, CE Seminar, KFUPM, 11 April, 2006.
10. "Precautions in Using Epoxy Coated Reinforcing Bars in Construction," **Prof. Mohamed Nabil El-Atrouzy**, CE Seminar, KFUPM, 18 April, 2006.
11. "Membrane Water Treatment Processes," **Mr. Mahmood Siddiqui**, CE Seminar, KFUPM, 25 April, 2006.
12. "Foamed Asphalt Application and Saudi Aramco Experience," **Mr. Hesham Gattan**, CE Seminar, KFUPM, 25 April, 2006.
13. "Treatment Strategy of Sewage Wastewater at Mid-Halton Treatment Plant," **Mr. Mansoor Jehangir**, CE Seminar, KFUPM, 25 April, 2006.
14. "Coordination between Different Disciplines during the Engineering Design Work," **Mr. Ali M. Shalan**, CE Seminar, KFUPM, 2 May, 2006.
15. "Techniques Used to Reduce the Speed and Increase the Safety in the Neighborhoods (Traffic Calming Techniques)," **Mr. Maen Abu-Olba**, CE

Seminar, KFUPM, 9 May, 2006.

16. "Cone Penetrometer Technology (CPT)," **Mr. Lateef Olawale Alamutu**, CE Seminar, KFUPM, 9 May, 2006.
17. "Contributions of Mobile Computing in Real Time GIS Data Collection and Analysis," **Mr. Syed Masiur Rahman**, CE Seminar, KFUPM, 16 May, 2006.
18. "Segmental Bridge System," **Mr. Basheer Hasan Al-Gohi**, CE Seminar, KFUPM, 16 May, 2006.
19. "Moisture Transport in Concrete," **Mr. Naeem Sohail Saleem**, CE Seminar, KFUPM, 16 May, 2006.
20. "Repair Options of Al-Khaleej School, Al-Hasa," **Dr. Ammar K. Mohamed**, CE Seminar, KFUPM, 21 May, 2006.
21. "Dome Formed by Open Web Joists," **Dr. Wafik Ajam**, CE Seminar, KFUPM, 23 May, 2006.
22. "An Exploratory Study on Corrosion Protection of Reinforcing Steel in Concrete Using Conducting Polymer," **Dr. Saleemur Rahman**, CE Seminar, KFUPM, 28 May, 2006.
23. "Variations in the Behavior of Concrete in Different Zones of Marine Environment," **Mr. Osmanuddin Adil Syed**, CE Seminar, KFUPM, 30 May, 2006.
24. "Reinforcement Corrosion," **Mr. Mohammed Azhar**, CE Seminar, KFUPM, 30 May, 2006.
25. "Non-destructive Tests on Concrete Structures," **Mr. Mohammed Shakeel**, CE Seminar, KFUPM, 30 May, 2006.

Chemical Engineering Department

1. Speaker : Ghazi Hamed Al-Utaibi
Title : Investigations of Mixing in Mechanically Stirred Tanks
Date : November 22, 2006
2. Speaker : Dr. Sulaiman S. Al-Khattaf
Title : Catalytic Isomerization of meta/ortho-xylene in a Fluidized Bed Reactor
Date : February 26, 2006

3. Speaker : Dr. Hadi N Al-Qahtani
 Title : Application of Rapid Crystallization Method to ZSM-5
 : Synthesis for Olefins (MS Thesis Proposal)
 Date : March 14, 2006
4. Speaker : Dr. Kevin F. Loughlin
 Title : An Overview of Engineering Design in an Academic
 : Environment
 Date : April 11, 2006
5. Speaker : Musaed s. Al-Ghamdi
 Title : Preferential Oxidation of Carbon Monoxide in Hydrogen-
 : Rich Gas for Fuel Cell Application (M.S. Thesis Defense)
 Date : May 28, 2006

Electrical Engineering Department

1. Speaker : Future Technologies
 Topic : Future Technologies Ltd. Al-Khobar seminar on ETAP
 Date : 14 Feb., 2006
2. Speaker : Dr. A. Massoud
 Topic : Solving the Narrow Corridor Problem in Potential Field-
 : Guided Autonomous Robots
 Date : 21 Feb., 2006
3. Speaker : Dr. A. Yamani
 Topic : Extraction of optimal features from the time-frequency
 : distribution of ultrasonic NDT signals
 Date : 28 Feb., 2006
4. Speaker : Prof. M. Shahidehpour
 Topic : Profit Maximization And Risks In Electricity Markets
 Date : 14 March, 2006.
5. Speaker : Mr. Ali. Al-Awami
 Topic : Power System Stability Enhancement using UPFC -A
 : nonlinear approach
 Date : 28 March, 2006.
6. Speaker : Dr. H. Al-Zaher
 Topic : CMOS Lowpass Filters for Dual Bluetooth/WLAN Direct-
 : Conversion Receiver
 Date : 4 April, 2006.
7. Speaker : Mr. Michel. Bridi
 Topic : GIS technology overview and its corresponding

- implementations at Electrical Utilities
 Date : 25 April, 2006
8. Speaker : Dr. Hassan Ragheb
 Topic : Approximate Solution for a Plane Wave Scattered by N
 Dielectric Coated Strips
 Date : 2 May, 2006
9. Speaker : Mr. David Eom
 Topic : On Line Continuous Partial Discharge Monitoring
 Date : 13 May, 2006

INVITED TALKS GIVEN BY DR. ABU-EL-MA'ATTI, M.T.

1. "In the Digital-Oriented Era, Do WE Really Need Analog Circuit Design", **Invited Lecture, Department of Electrical Engineering, Amirkabir University of Technology, Tehran, Iran.**
2. "Wireless Broadband Networks, WiMAX: A Contrast and a Complement to WiFi," e-CETEM, ARAMCO, Saudi Arabia, Septemeber, 2005.

INVITED TALKS GIVEN BY DR. ASRARUL HAQUE SHEIKH

1. Milestones in Communications, Invited talk at Texas A&M University, at Qatar, Qatar, April 11, 2006.
2. Motivating the Engineering Students, Invited talk at University of Qatar, Qatar, April 12, 2006.
3. Milestones in Communications: From Electric Telegraphy to Optical Switching, CCSP2005 Plenary, November 16, Kuala Lumpur, Malaysia, November 2005.

INVITED TALKS GIVEN BY TAREQ Y. AL-NAFFOURI

1. Tareq Y. Al-Naffouri, A framework for the estimation of time-variant channels in OFDM, Electrical Engineering Department, Delft University of Technology, Netherlands, June 9, 2006.
2. Tareq Y. Al-Naffouri, A method for the estimation of time-variant channels in OFDM, Electrical Engineering Department, California Institute of Technology, June 30, 2006.

Mechanical Engineering Department

1. Speaker : Dr. Iba F. Al-Adel

- | | | | |
|-----|---------|---|---|
| | Topic | : | Corrosion and Industry |
| | Date | : | Jan., 03, 2006 |
| 2. | Speaker | : | Dr. Amro M. Al-Qutub |
| | Topic | : | Wear Test Capability in Mechanical Eng-ineering
Department : Case on Wear of Nano-Size Metal-Matrix
Composite. |
| | Date | : | Feb., 28, 2006 |
| 3. | Speaker | : | Dr. M.A. Hawwa |
| | Topic | : | Patenting Reshapes University Research |
| | Date | : | March 07, 2006. |
| 4. | Speaker | : | Dr. Sudhir Mehta |
| | Topic | : | Petroleum Technology Related Applications of Analytical
Electron Microscopy |
| | Date | : | March 28, 2006 |
| 5. | Speaker | : | Dr. Hussain Al-Fadhli |
| | Topic | : | Analysis of the Effect of Bending, Fatigue, Erosion-
Corrosion, and Tensile Stresses on HVOF Coating of
Metallic Surfaces |
| | Date | : | April 04, 2006 |
| 6. | Speaker | : | Mr. Mousa A. Al-Haijan |
| | Topic | : | Effective Rotating Machinery Trouble Shooting Using
Vibration Analysis |
| | Date | : | April 11, 2004 |
| 7. | Speaker | : | Mr. Iyer Sethuraman |
| | Topic | : | Glass Fiber Industry in Saudi Arabia |
| | Date | : | April 16, 2006 |
| 8. | Speaker | : | Mr. Basel M.A. Isayed |
| | Topic | : | A Nonlinear PID Control Strategy for Hard Disk Drive
Servosystems |
| | Date | : | April 16, 2006 |
| 9. | Speaker | : | Mr. Ahmed Al-Balwai |
| | Topic | : | Sea Water Cooling System for Jubail 1 & 2 |
| | Date | : | April 25, 2006 |
| 10. | Speaker | : | Dr. Mohammed A. Antar |
| | Topic | : | Accurate Estimation of Heat Leak Through Hollow Building
Blocks |
| | Date | : | April 30, 2006 |
| 11. | Speaker | : | Mr. Tomoaki Ikeda |
| | Topic | : | Manufacturing and Quality Control of Line Pipes” |

- | | | | |
|-----|---------|---|--|
| | Date | : | May 02, 2006 |
| 12. | Speaker | : | Dr. Khalid Al-Dheyman |
| | Topic | : | Tensile Failure Micromechanisms of 6061 Aluminum Reinforced with submicron AlO ₃ Metal Matrix Composite |
| | Date | : | May 09, 2006 |
| 13. | Speaker | : | Mr. Fahad G. Al-Amri |
| | Topic | : | Effect of Surface Radiation on Internal Flows with Non-Isothermal Boundary Conditions |
| | Date | : | May 21, 2006 |
| 14. | Speaker | : | Mr. Mohammed Z. Ilyas |
| | Topic | : | Process, Design and Quality of Submerged ARC Welding |
| | Date | : | May 23, 2006 |
| 15. | Speaker | : | Mr. Osman M. Duffuaa |
| | Topic | : | Effect of Tube Projection, Grooves and Initial Clearance on the Integrity of Rolled Tube-to-Tubesheet Joints |
| | Date | : | May 23, 2006 |
| 16. | Speaker | : | Mr. Shaik Razwab |
| | Topic | : | Hydrodynamic Study of the Flow Behavior of a Single Buoyant Sphere in a Stratified Oil-Water Two Phase Flow |
| | Date | : | May 23, 2006 |

Aerospace Engineering Department

- | | | | |
|----|---------|---|---|
| 1. | Speaker | : | Dr. Ahmed Z. Al-Garni |
| | Topic | : | Aerospace Engineering Golden Opportunity |
| | Date | : | 23.5.2006 (1427H) |
| 2. | Speaker | : | Dr. Ayman Kassem |
| | Topic | : | Flight Dynamics and Control |
| | Date | : | 7.5.2006 (1427H) |
| 3. | Speaker | : | Dr. Hanafy Omar |
| | Topic | : | Satellite Attitude Control Using Reaction Wheel: A Senior Design Project Case Study |
| | Date | : | 12.4.2006 (1427) |
| 4. | Speaker | : | Mr. M. Tozan |
| | Topic | : | Safety in Aviation |
| | Date | : | 2.5.2006 (1427H) |
| 5. | Speaker | : | Mr. Ahmad Jamal |
| | Topic | : | Failure Rate Analysis of Boeing 737 Brakes Employing |

Date : Neural Network
23.5.2006 (1427H)

Chemistry Department

1. Speaker : Prof. Bassam El Ali
Topic : Regioselective catalytic hydrocarboxylation of alkynes
Date : 11th October 2005
2. Speaker : Prof. Hasan Badawi
Topic : Conformational Equilibria and structural stability
Date : 27th November 2005
3. Speaker : Dr. Amin R. Ghaleb
Topic : 4Mat Learning Model
Date : 25th December, 2005
4. Speaker : Dr. Shakeel Ahmad
Topic : Light Olefins Production
Date : 26th February, 2006
5. Speaker : Dr. Saleh Al-Baridi
Topic : Library: Services & Resources
Date : 21st March, 2006
6. Speaker : Mr. Shafiqur Rehman
Topic : Renewable Energies Arabian Experience
Date : 25th April, 2006

Earth Sciences Department

1. Speaker : Dr. Zulfiqar Ahmed
Title : The Making of Arabian Shield: A synthesis
Date : April 25, 2006

Mathematical Sciences Department

1.	Speaker Title Date	: : :	Prof. Abul Hasan Siddiqi Parallel Algorithms for Variational Inequalities Arising Sunday, January 1, 2006
2.	Speaker Title Date	: : :	Prof. Ibrahim Rahimov Duality Theorems for a Branching Process with Continuous States and Applications Sunday, February 19, 2006
3.	Speaker Title Date	: : :	Dr. M.A. Bokhari Interpolation Beyond the Interval of Convergence in Erdö - Tur'an Theorem Sunday, February 26, 2006

4.	Speaker Title Date	: : :	Dr. Mohamed R. Alaimia Z_+^2 – actions and the operator algebras associated with them Sunday, March 12, 2006
5.	Speaker Title Date	: : :	Dr. Qamrul Hasan Ansari Ekeland's Variational Principle and Its Applications Sunday, April 16, 2006
6.	Speaker Title Date	: : :	Dr. Anwar H. Joarder Moment Integrals and Identities without Integration Sunday, April 23, 2006
7.	Speaker Title Date	: : :	Dr. Jawad Abuihlail On Coreflexive Coalgebras and Comodules over Commutative Rings Sunday, May 7, 2006
8.	Speaker Title Date	: : :	Dr. Raja Latif Characterizations of Alpha-Weakly Continuous Mappings Sunday, May 14, 2006
9.	Speaker Title Date	: : :	Dr. Monther AlFuraidan Strongly Regular Graphs Sunday, May 21, 2006
10.	Speaker Title Date	: : :	Dr. N. Tatar (Selected by A. Shawky Ibrahim) "Some Thoughts from Seven Decades" A vide Lecture by Irving Kaplansky Sunday, May 28, 2006
11.	Speaker Title Date	: : :	Dr. A. Lyaghfour On the Dam Problem with Two Fluids Sunday, June 4, 2006

Math Education Seminars

1.	Speaker Title Date	: : :	Dr. Abdullahi Umar Predicting Next Term of a Sequence Tuesday, April 25, 2006
2.	Speaker Title Date	: : :	Dr. A. Shawky Ibrahim A Video on "Fermat's Last Theorem" Tuesday, May 16, 2006

Lectures/Seminars by outside speakers

1.	Speaker Title Date	: : :	Dr. Ali S. Alhakami (General Manager, Obeikan Research & Development Co., Riyadh) Trends in International Mathematics and Science Study: (TIMSS) Background, Methodology, Results and Implications Tuesday, February 28, 2006
2.	Speaker Title	: :	Prof. Mohammad Fraiwan Al-Saleh (Department of Statistics, Yarmouk University, Irbid-Jordan) A Note on Inclusion Probability in Ranked Set Sampling and Some of its Variations

	Date	:	Sunday, March 5, 2006
3.	Speaker	:	Dr. Mohammad Fraiwan Al-Saleh (Department of Statistics, Yarkouk University, Irbid-Jordan)
	Title	:	On the Confusion about the $(n-1)$ --Divisor of the Standard Deviation
	Date	:	Tuesday, March 7, 2005
4.	Speaker	:	Prof. John M. Howie (The Mathematical Institute, University of St Andrews, Scotland)
	Title	:	Some Semigroups of Mapping
	Date	:	Sunday, March 26, 2006
5.	Speaker	:	Prof. John M. Howie (The Mathematical Institute, University of St Andrews, Scotland)
	Title	:	What Use in Mathematics?
	Date	:	Tuesday, March 28, 2006
6.	Speaker	:	Prof. John M. Howie (The Mathematical Institute, University of St Andrews, Scotland)
	Title	:	Writing Books
	Date	:	Tuesday, March 28, 2006
7.	Speaker	:	Dr. K.R. Sreenivasan Director, ICTP, Italy
	Title	:	Fluid Terbulence
	Date	:	April 8, 2006
8.	Speaker	:	Dr. Ali Mousa (Dammam Community College)
	Title	:	Abu al-Wafa and the Earliest Applications of the Sine Theorem
	Date	:	Tuesday, April 11, 2006
9.	Speaker	:	Dr. Jaffar AlMutawa (Dept. of Applied Mathematics, Kyoto Univ., Japan)
	Title	:	Identification of Errors-in-Variables Model with Observation outliers Based on Minimum Covariance Determinant
	Date	:	Sunday, April 30, 2006
10.	Speaker	:	Dr. Ali Moussa (Dammam Community College)
	Title	:	Abu al-Wafa's Trigonometric Tables
	Date	:	Tuesday, May 23, 2006

Research (StaR) Group Seminar

1.	Speaker	:	Dr. Anwar H. Joarder
	Title	:	On a Bivariate Chisquare Distribution
	Date	:	Tuesday, February 21, 2006
2.	Speaker	:	Dr. Anwar H. Joarder
	Title	:	An Introduction to the Bivariate T-Distribution
	Date	:	Tuesday, February 28, 2006
3.	Speaker	:	Dr. Ali Sahin (Research Institute, KFUPM)
	Title	:	Regionalized Variables and Spatial Correlation
	Date	:	Tuesday, April 11, 2006
4.	Speaker	:	Dr. Walid Abu-Dayyeh Estimating $P(Y < X)$ Using Ranked Set
	Title	:	Sampling in Case of the Exponential Distribution
	Date	:	Tuesday, April 25, 2006

5.	Speaker Title Date	: : :	Dr. Mohammad H. Omar Some Statistics for Equating Multiple Forms of a Test Tuesday, May 16, 2006
6.	Speaker Title Date	: : :	Dr. Hasen Muttlak EWMA Statistical Process Control with Rank Set Sampling Tuesday, May 23, 2006

DERL (Differential Equations Research Lab)

1.	Speaker Title Date	: : :	Dr. Khaled M. Furati Fractional Derivative Inequalities Tuesday, February 28, 2006
2.	Speaker Title Date	: : :	Dr. S. Messaoudi Evolution Equation I Tuesday, April 4, 2006
3.	Speaker Title Date	: : :	Mr. A. Mansour (Univ. of El-Oued, Algeria) A Comparison Result for the Solution of the Stationary Dam Problem Tuesday, April 11, 2006
4.	Speaker Title Date	: : :	Dr. S. Messaoudi Evolution Equation II Tuesday, April 25, 2006
5.	Speaker Title Date	: : :	Dr. Abdul Rahim Khan and Mr. Abdul-Aziz Domlo Approximation of Common Fixed Points by Iterative Methods Tuesday, May 9, 2006
6.	Speaker Title Date	: : :	Dr. Nasser-eddine Tatar Stablization of a Partially Viscoelastic Material Tuesday, May 23, 2006

Thesis Defense

1.	Speaker Title Date	: : :	Mr. Abdulaziz Mustafa Domlo Fixed Point Results of Some Nonlinear Maps with Applications Sunday, May 21, 2006
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Commutative Algebra Weekly Seminar (Organizer: Dr. S. Kabbaj)

February–May 2006

(Seminars given by the following faculty members)

1.	Speaker Title	: :	I. Al-Rasasi Bhargava Rings (1)
2.	Speaker Title	: :	I. Al-Rasasi Bhargava Rings (2)
3.	Speaker Title	: :	I. Al-Rasasi Bhargava Rings (3)
4.	Speaker	:	I. Al-Rasasi

	Title	:	Regular Basis for Bhargava Rings Over DVRs
5.	Speaker Title	:	I. Al-Rasasi Noetherianity of Bhargava Rings
6.	Speaker Title	:	I. Al-Rasasi Well-Distributed Sequences
7.	Speaker Title	:	I. Al-Rasasi Bonnes Bases
8.	Speaker Title	:	I. Al-Rasasi Prime Ideals in Bhargava Rings I
9.	Speaker Title	:	I. Al-Rasasi Prime Ideals in Bhargava Rings II
10.	Speaker Title	:	J. Abuihlail Tilting Modules Over Integral Domains. Survey and Open Problems
11.	Speaker Title	:	J. Abuihlail n-Tilting Modules Over Integral Domains. Survey and Open Problems
12.	Speaker Title	:	J. Abuihlail Tilting Modules Over Valuation Domains 1
13.	Speaker Title	:	J. Abuihlail Tilting Modules Over Valuation Domains (II)
14.	Speaker Title	:	A. Mimouni Cores of Ideals in a Local Regular Ring (1)
15.	Speaker Title	:	A. Mimouni Cores of Ideals in a Local Regular Ring (2)
16.	Speaker Title	:	A. Mimouni Core and Residual Intersections of Ideals (1)
17.	Speaker Title	:	A. Mimouni Reductions of Ideals in Local Rings (1)
18.	Speaker Title	:	A. Mimouni Reductions of Ideals in Local Rings (11)
19.	Speaker Title	:	A. Mimouni Cores of deals in Local Rings (111)

Physics Department
Seminars

1. Speaker : Dr. A. Ramadhan
Title : Production of Nano Cylinders of Diamond
Date : 12 Feb. 2006
2. Speaker : Dr. N.Maalej, Prof. N. Tabet and Dr. Z.Yamani
Title : Nanotechnology: The BIG Impact of the SMALL
Date : 19 Feb. 2006
3. Speaker : Dr. M. Faiz
Title : X-ray Absorption Spectroscopy and Applications
Date : 26 Feb. 2006
4. Speaker : Prof. A. Isab
Title : Rheumatoid Arthritis and Gold(I) Drugs

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| | Date | : | 5 Mar. 2006 |
| 5. | Speaker | : | Dr. A. Al-Jalal |
| | Title | : | Physics 102 as a web-supported course |
| | Date | : | 12 Mar. 2006 |
| 6. | Speaker | : | Dr. A. Al-Karmi |
| | Title | : | Physics in Magnetic Resonance Imaging. |
| | Date | : | 19 Mar. 2006 |
| 7. | Speaker | : | Dr. H. Rizvi |
| | Title | : | KFUPM Science Park (KASP): A New Era for Sustainable Technology Based Development |
| | Date | : | 9 Apr. 2006 |
| 8. | Speaker | : | Dr. F. Khiari |
| | Title | : | Radiation Protection for Pedestrians |
| | Date | : | 23 Apr. 2006 |
| 9. | Speaker | : | Prof. M. I. Al-Jarallah |
| | Title | : | Biological Effects of Ionizing Radiation |
| | Date | : | 07 May 2006 |
| 10. | Speaker | : | Dr. N. Maalej |
| | Title | : | Power Line Worker Exposure to Electromagnetic Fields: a Case Study |
| | Date | : | 14 May 2006 |
| 11. | Speaker | : | Dr. Al-Kuhaili |
| | Title | : | Determination of the Optical Properties of Inhomogeneous Thin Films. |
| | Date | : | 21 May 2006 |

Invited Talks

1. “Grid Geometry Optimization for Mammography Imaging. Medical Physics Concepts & Clinical Practice” **M A Al Kafi, N Maalej, A Naqvi**, Symposium, King Fahd Medical City, Riyadh.
2. Wave Transmission in Gain Media “ **H. Bahlouli**, 16 May 2006, at Physics Department, King Khaled University at Abha.
3. “Surface Dose Measurement in 6 MeV X-ray Beam Using Radiographic Film and TLD”, H. Gamdi, **N Maalej**. King Fahd Medical City, Medical physics Symposium. King Fahd Medical City, Riyadh.

4. “The Secrets of Atomic Radiation” **M.I. Al-Jarallah**, Invitation by the General Administration of Education in the Eastern Province, held in Dhahran Airport held on 10/5/06.
5. Invited Lecture in Arabic “Spallation Reactors: The Future Power Production” **M.I. Al-Jarallah**, Invitation by the Dammam Supervising Center of the General Administration of Education, Eastern Province, held in the Center, 14/5/2006
6. “The Luminescence of the Small”, **N. Tabet**, First Meeting of Education Colleges for Girls, 22-26 April, 2006, Jeddah, Saudi Arabia.
7. “The Shift from Micro-to-Nanoelectronics” , **N. Tabet**, Third Meeting on Science and Education, 9th May, 2006, Dhahran, Saudi Arabia.
8. “Nanotechnology”, **N. Tabet**, Physics Department, King Abdulaziz University, (KAU), Jeddah, 12 April 2006.
9. “Physics of Laser Breakdown Spectroscopy and its Applications in Environment, Geology, Petroleum, Steel and Mining Industries”, **M. Gondal** , Phys Dept, King AbdulAziz University, Jeddah, 29 March 2006.
10. Effect of Industrial Pollution On Environment and New Optical Techniques, **M. Gondal**, Earth Science Department, KFUPM, 20 December, 2005.

Information & Computer Science Department

1. “Image Watermarking Using Balanced Multiwavelets”, **L. Ghouti**, Nancy University, March 2006.
2. “Data-Hiding Capacities of Balanced Multiwavelets”, **L. Ghouti**, Paris 13 University, April 2006.
3. “A Robust Perceptual Audio Hashing Using Balanced Multiwavelets”, **L. Ghouti**, Toulouse University, May 2006.
4. “Decidable Classes of Terminating Logic Programs”, **M.R.K. Krishna Rao**, Massey University, New Zealand, April 2006.
5. "Effective Techniques against Software Cracking", **Khaled Salah**, KFUPM, March 28, 2006
6. "From Direct Manipulation to Agent Management: An Introduction to Agents and Cognitive Prostheses", Jeffery M. Bradshaw, Florida Institute for Human and Machine Cognition (USA), 23 May 2006.
7. "Making Agents Acceptable to People", Jeffery M. Bradshaw, Florida Institute for Human and Machine Cognition (USA), 24 May 2006.
8. “Ubiquitous Networking: A Security Perspective”, Mohamed Eltoweissy, Bradley

Department of Electrical and Computer Engineering Virginia Polytechnic Institute
and State University, USA, 13 May 2006.

Computer Engineering Department

1. Speaker : Dr. Radwan A. Abdel-Aal
Topic : Forecasting the wind speed time series
Venue : The Environmental Protection Department, Saudi Aramco, Dhahran
Date : 3 May 2006.
2. Speaker : Dr. Radwan A. Abdel-Aal
Topic : Environmental applications of machine learning,"
Venue : The Environmental Protection Department, Saudi Aramco, Dhahran.
Date : 12 April 2006.
3. Speaker : Dr. Radwan A. Abdel-Aal
Topic : Potential areas for collaboration between CCSE and EDP
Venue : The Environmental Protection Department (EDP), Saudi Aramco, Dhahran,
Date : 8 March 2006.
4. Speaker : Mr. Abdul-Aziz Rayiss Al-Helaliis
Topic : Intrusion Detection and Tracing in Large-Scale Networks
Date : May 2, 2006
5. Speaker : Mr. Mohammad Ibrahim Al-Behwashi
Topic : Prototype Design of Pure Material Property Calculator
Date : April 18, 2006
6. Speaker : Mr. Tayseer Al-Khdour
Topic : Performance Analysis of PCF using Adaptive Polling Schemes
Date : April 11m 2006
7. Speaker : Mr. Ahed M. Al-Shanyour
Topic : Packet Reservation Multiple Access with Random Contention
Date : April 4, 2006
8. Speaker : Mr. Fahd A. Abdul-Hameed
Topic : Wireless Local Area Networks Integration for Mobile Network Operators
Date : March 14, 2006
9. Speaker : Mr. Anas Orwani

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| | Topic | : | Adaptive Image Compression for Wireless Multimedia Communication |
| | Date | : | March 07, 2006 |
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| 10. | Speaker | : | Mr. Ahmad M. Hamra |
| | Topic | : | iSCSI and IP SAN |
| | Date | : | January 3, 2006 |
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| 11. | Speaker | : | Mr. Shaik Muzibur Rehman |
| | Topic | : | Energy efficient on chip (SoC) communication |
| | Date | : | January 3, 2006 |

Systems Engineering Department

1. Speaker : Prof. Abdul Raouf (Adjunct Professor)
Topic : Quality Management: A Customer-Driven Approach
Date : February 28, 2006
2. Speaker : Dr. Mohammad Shafiq
Topic : Adaptive Tracking of Non-Minimum Phase Discrete-Time Plants Using Inverses of Signals
Date : March 28, 2006
3. Speaker : Prof. Salih Duffuaa
Topic : Multi-Objective Mathematical Model for Process Targeting
Date : April 18, 2006
4. Speaker : Mr. Mobasshir Quamar, Research Assistant
Topic : Multi-Objective Optimization for Process Targeting
Date : May 9, 2006
5. Speaker : Mr. Osama Odah, Research Assistant
Topic : Vendor Managed Inventory (VMI)
Date : May 9, 2006

Finance & Economics Department

Speaker: **Professor Mansur Masih** (as the holder of Bumiputra-Commerce Bank Chair Professor of Finance and Banking , Northern University of Malaysia)
 Title: “ Recent and Ongoing Advances in Econometric Research Methodology in Finance and Economics”
 Date: Eight-hour weekly research workshop given to fifty Malaysian faculty (June, 2006 at the Northern University of Malaysia)

Architecture Department

1. “Developing Plans for the Improvement of Campus Amenities and Services”, **Adel S. Aldosary, Rabee Reffat, Ashraf Salama** (2006), KFUPM Strategic Plan project Workshop, Sunset Beach, Al-khobar, June 8, 2006, 2;30 pm.

City & Regional Planning Department

1. “Developing Plans for the Improvement of Campus Amenities and Services” , **Adel S. Aldosary, Rabee Reffat, Ashraf Salama** (2006), KFUPM Strategic Plan project Workshop, Sunset Beach, Akhobar, June 8, 2006, 2;30 pm.

13. SEMINARS OFFERED BY OUTSIDE SPEAKERS IN THE UNIVERSITY

Petroleum Engineering Department

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|----|---------|---|---|
| 1. | Speaker | : | Hossein Kazemi, Colorado School of Mines, Colorado, USA |
| | Topic | : | Reservoir Management Expectations to Increase Recovery |
| | Date | : | 12 th December 2005 |
| 2. | Speaker | : | Ramez Shokeir, Schlumberger, Al-Khobar |
| | Topic | : | Advances in Formation Evaluation Technology |
| | Date | : | 15 th March 2006 |
| 3. | Speaker | : | Abdul-Jaleel A. Al-Khalifa, Saudi Aramco, Dhahran |
| | Topic | : | Petroleum Industry 2020 – People Imperative |
| | Date | : | 17 th April 2006 |
| 4. | Speaker | : | Dan Georgi, Vidar Rygg and Angus Simpson, Baker Hughes, Al-Khobar |
| | Topic | : | Advanced Open-Hole Logging |
| | Date | : | 30 th April 2006 |

Chemistry Department

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|----|---------|---|--|
| 1. | Speaker | : | Prof. Riazuddin, Director NCP Qaid-I-Azam University, Pakistan |
| | Topic | : | Fullerenes |
| | Date | : | 20 th September, 2005 |
| 2. | Speaker | : | Dr. Abdelmounam Mustafa Sherik, Saudi Aramco R&D Center |
| | Topic | : | Nanomaterials: Applications and Future Challenges |
| | Date | : | 02 nd October 2005 |
| 3. | Speaker | : | Dr. Gert-Jan M. Gruter, Avantium Technologies, The Netherlands |
| | Topic | : | From High Throughput Experimentation to High Output R&D |
| | Date | : | 27 th November, 2005 |
| 4. | Speaker | : | Dr. Joergpeter Conzen, Vice President & Head of NIR Department |
| | Topic | : | FTIR Spectroscopy & Resrach Application Bruker |
| | Date | : | 04 th December, 2005 |
| 5. | Speaker | : | Dr. Mohamed Al-Higari, Regional Manager Middle East |
| | Topic | : | The FTIR Spectroscopy and research Applications |
| | Date | : | 04 th December, 2005 |
| 6. | Speaker | : | Dr. Khalid Al-Hooshani, Arras Teachers College, Arras |
| | Topic | : | Sol-Gel Materials for Chromatographic Separations |
| | Date | : | 13 th December, 2005 |
| 7. | Speaker | : | Dr. Raja'a M Al Marzoqi, KACST, Riyadh |

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| | Topic | : | Economics of Petrochemicals |
| | Date | : | 03 rd January, 2006 |
| 8. | Speaker | : | Dr. Abdulaziz Bagabas, KACST Riyadh |
| | Topic | : | Pyruvic Acid Oxime Complexes as Low-Temperature |
| | Date | : | 14 th March, 2006 |
| 9. | Speaker | : | Dr. Stuart W. Bennette, Open University, UK |
| | Topic | : | Why Science Difficult and Dull |
| | Date | : | 26 th March, 2006 |
| 10. | Speaker | : | Dr. Stuart W. Bennette, Open University, UK |
| | Topic | : | Why Science Difficult and Dull |
| | Date | : | 28 th March, 2006 |
| 11. | Speaker | : | Prof. Jamal Bennazha, University Hassan II, Mohammadia
Morocco |
| | Topic | : | Evaluation of some Moroccan Natural substances and solid wastes
by LMCE |
| | Date | : | 04 th April, 2006 |
| 12. | Speaker | : | Dr. Muhammad Anwar Baig, NUST Pakistan |
| | Topic | : | Chemicals in our Environment and their impacts |
| | Date | : | 05 th April, 2006 |
| 13. | Speaker | : | HRH Prince Dr. Turki bin Saudi Al-Saud, VP for Research
Institute KACST |
| | Topic | : | Saudi Arabia Nanotechnology Initiative |
| | Date | : | 05 th April, 2006 |

Earth Sciences Department

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|----|----------|---|--|
| 1. | Speaker | : | Dr. Amir Alani (Saudi Aramco) |
| | Title | : | Applications of the GPR in site and archaeological
Investigations |
| | Date | : | February 28, 2006 |
| 2. | Speaker | : | Dr. M.A. Baig (Inst. Envir. Sci. Engng., Islamabad,
Pakistan) |
| | Title | : | Environmental impact assessment of new development
projects |
| | Date | : | April 4, 2006 |
| 3. | Speakers | : | Dr. Dan Georgi, Vidar Rygg & Angus Simpson (Baker
Hughes) |
| | Title | : | Advanced open-hole logging |
| | Speaker | : | Dr. Xiao Ming Tang (Baker Hughes) |
| | Title | : | Advanced Geosciences Solutions |
| | Date | : | April 30, 2006 (Joint Seminar Series with Petr. Eng. Dept., |

RI CPM & ESD)

4. Speaker : Dr Parvez Butt (Schlumberger)
 Title : Applications of new and innovative LWD technologies
 Date : May 9, 2006
5. Speaker : Dr. Jan Mrlina (Geoph. Inst. of Czech Acad. Sci., Prague)
 Title : Temporal variations of the gravity field in relation to tectonic activity in different geological settings
 Date : May 14, 2006
6. Speaker : Dr. Mohammed Badri (Schlumberger Carbonate Res. Ctr., Dhahran)
 Title : Gas saturation mapping using prestack full waveform seismic inversion: Examples from Pliocene sand
 Date : May 16, 2006
7. Speaker : Dr. Ian Stewart (Saudi Geol. Soc., Jeddah)
 Title : Gravity in eastern Saudi Arabia and correlation with earthquake occurrence
 Date : May 23, 2006

Mathematical Sciences Department

1. Speaker : Dr. Salim Messaoudi
 Topic : General Decay of Solutions in an Abstract Integro-Differential Equation
 Location : Mathematics Department, University of Le Havre, France
 Date : June 22, 2006
2. Speaker : Dr. Jawad Abuhlail
 Topic : Induction and Co-Induction for Categories of Comodules
 Location : King Abdulaziz University, Jeddah
 Date : June 6, 2006
3. Speaker : Dr. Abul Hasan Siddiqi
 Topic : Heil-Ramanathan-Topiwal Conjecture,
 Location : Invited Speaker at the 93rd Indian Science Congress, Hyderabad, India
 Date : January 3-7, 2006

Physics Department

1. Speaker : Dr. Z. Elzimili (Saudi Aramco, Dhahran)
 Title : Recent Advances in Diagnostic Radiology

- Date : 26 Mar. 2006
2. Speaker : Prof. M. Ismail (University of Central Florida, USA)
 Title : Orthogonal Polynomial, Discriminants, and Electrostatic Equilibrium Problems
 Date : 19 Apr. 2006
3. Speaker : Prof. M. Ismail (University of Central Florida, USA)
 Title : Orthogonal Polynomial and their spectral Theory
 Date : 19 Apr. 2006
4. Speaker : Dr. Edward Clerke (Saudi Aramco, Dhahran)
 Title : Petrophysics: Physics of Porous Geologic Media containing Water and Hydrocarbons
 Date : 30 Apr. 2006

Computer Engineering Department

1. Speaker : Dr. Mostafa I. Abd-El-Barr
 Adjunct Professor, COE Department
- Morning Session:**
- Topic # 1 : Efficient Representation of Benes Networks with Applications
 Topic # 2 : Topological Network Design
- Afternoon Session:**
- Topic # 1 : Outcome-Based Learning Paradigm
 Topic # 2 : Student Portfolio: Concepts and Examples
 Date : May 16, 2006

Systems Engineering Department

1. Speaker : Dr. Ahmed A. Masoud (EE Department)
 Topic : Managing the Dynamics of a Potential Field-Guided Robot in a Cluttered Environment
 Date : March 14, 2006
2. Speaker : Mr. Leo Rams (Marketing & Sales Manager, Holland-Nazaik Co., Al-Khobar)
 Topic : Latest Technologies for Process Simulation and Training
 Date : March 21, 2006

Department of Management & Marketing

1. Speaker : **Al-Ghamdi, S.**
 Topic : Conflict Management Seminar for Personal Skills Program.
 Date : Monday, February 27, 2006
2. Speaker : **Al-Ghamdi, S.**

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| | Topic | : | Conflict Management Seminar for KFUPM Personal Skills Program |
| | Date | : | Wednesday, March 01, 2006 |
| 3. | Speaker | : | Al-Ghamdi, S. |
| | Topic | : | Conflict Management Seminar for KFUPM Personal Skills Program |
| | Date | : | Monday, March 20, 2006 |
| 4. | Speaker | : | Al-Ghamdi, S. |
| | Topic | : | Conflict Management Seminar for KFUPM Personal Skills Program |
| | Date | : | Tuesday, March 21, 2006 |
| 5. | Speaker | : | Al-Ghamdi, S. |
| | Topic | : | Conflict Management Seminar for KFUPM Personal Skills Program |
| | Date | : | Monday, April 17, 2006 |
| 6. | Speaker | : | Al-Ghamdi, S. |
| | Topic | : | Conflict Management Seminar for KFUPM Personal Skills Program |
| | Date | : | Wednesday, April 19, 2006 |