

RESEARCH NEWSLETTER

A RESEARCH COMMITTEE PUBLICATION

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TABLE OF CONTENTS

	<u>Page #</u>
1. FOREWORD	2
2. ABSTRACTS OF SELECTED RESEARCH PROJECTS.....	3
3. RESEARCH/BOOK-WRITING PROJECTS CURRENTLY SUPPORTED BY THE UNIVERSITY	10
4. RESEARCH PROPOSALS UNDER REVIEW	15
5. BOOK-WRITING PROPOSALS UNDER REVIEW.....	17
6. SABBATICAL LEAVE PROPOSALS RECEIVED FOR 2001-2002	18
7. SABIC AND FAST TRACK PROPOSALS RECEIVED FOR FUNDING DURING NOVEMBER 2002.....	19
8. PUBLICATIONS IN REFEREED JOURNALS REPORTED AFTER JULY, 2002	22
9. RESEARCH PAPERS PRESENTED AT CONFERENCES REPORTED AFTER JULY, 2002	38
10. BOOKS PUBLISHED AND CONTRIBUTIONS	57
11. TECHNICAL REPORTS.....	49
12. INTERNAL LECTURES/SEMINARS PRESENTED BY KFUPM FACULTY	61
13. SEMINARS OFFERED BY OUTSIDE SPEAKERS AT KFUPM	69

1. **FOREWORD**

The purpose of research at KFUPM is two-fold: to advance or produce new knowledge and to train students. A healthy research program has the added 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 KFUPM Research Committee on a semi-annual basis, provides a snapshot 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.

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

Dr. Mohammad Al-Ohali
Chairman, Research Committee

- TITLE: Turbulent Natural Convection Flow in Parallel and Converting-Plate Vertical Channels**

This study aims to investigate experimentally and numerically the problem of turbulent natural convection flows in three-dimensional vertical channels. The importance of this problem is mainly due to the many related engineering applications ranging from solar heating systems to cooling of electronic and electric power equipment. The investigation will cover two specific geometries; the first is a vertical channel of uniform cross-section (parallel-plate channel) and the second is a converging-plate vertical channel. The details of the flow and thermal fields are to be obtained from the solution of the conservation equations of mass, momentum and energy in addition to the equations of the low Reynolds number $k-\epsilon$ turbulence model. The study aims to cover the Rayleigh numbers range from 10^5 to 10^7 and focuses on the effect of channel geometry and boundary conditions on the characteristics of the flow and thermal fields as well as the local and average Nusselt number variations. Experimental measurements will be performed for two different geometries with the objective of attaining the details of the velocity fields in the converging-plate channel and validating the calculation procedure. Nusselt number correlations in terms of different flow parameters will be developed.

- TITLE:** Two-Dimensional Vibration Suppression in Machining Using a Kalman-Estimator-Based Feed-Forward Active Controller

Vibration suppression of the tool (cutter) results in improved dimensional accuracy and enhanced productivity in machining operations. Vibration of the tool in machining could be viewed as a tool/workpiece interaction excited by the vibration of the machine tool structure. In light of this, isolating the tool from the machine structure reduces this interaction to a base excitation problem in which sufficient condition to eliminate vibration is to reduce the cutting tool acceleration—ideally to zero. Since most cutting tools are rigidly attached to the machine tool structure, their accelerations are almost identical to those of the structure where they are mounted. To lower the tool vibration, it is necessary to construct an active tool holder capable of isolating the cutting tool (cutter) from the vibration of the machine tool structure. The isolation mechanism is accomplished by means of a novel, Kalman estimator-based feed-forward control strategy, high bandwidth actuators, and acceleration transducers.

The principal investigator has already developed a one-dimensional vibration isolation control strategy for the turning process and carried out several experiments to verify the validity and effectiveness of this strategy. A schematic of the strategy is shown in Figure 1. Experimental surface profiles depicted in Figure 3 shows the remarkable success in improving surface roughness of machined parts achieved using this strategy. The most important and favorable technical aspect of the proposed strategy is that, “the Kalman estimator-based controller is an optimal low order controller”. Not to forget that the integrity of the controller is maintained because its design is dependent upon the full order model of the plant. Yet, its implementation is reduced to the realization of a second order estimator regardless of the order of the plant model. This is an important and crucial aspect of control processes that are implemented in real time, which requires fast execution of numerical calculation and fast response to any sudden damage, failure, or parametric changes in the plant. This strategy also has advantages, over other available strategies, in terms of its agility, ease of implementation, low cost, reliability, robustness, and relatively high-bandwidth response to process excitation.

In order for the proposed model to be valid, a proper model for the control has to be formulated and incorporated into the design stage of the control strategy. Therefore, the principal investigator has developed a one-dimensional stochastic model for the cutting process. This model describes the cutting process by a random excitation with Gaussian distribution originating from the nonhomogeneous distribution of the microhardness of the workpiece material [1, 2, 3].

The Kalman filter is a highly effective and widely used estimator. Ideally, its used to estimate (extract) the states of the dynamic systems from primitive measurements that are severely contaminated with noise, which is exactly the situation in this research, since the cutting process is modeled as a random process with Gaussian distribution (i.e., noise). The Kalman filter has gained its popularity because of the fact that its formulation is exact in the discrete domain. Therefore, digital platforms (such as computers) are ideal for its implementation. Verification of the proposed control strategy could be achieved in two ways. First, it could be simulated using commercial software packages such as Matlab and ASPI Banshee System platforms. Second, the process could be implemented experimentally by fabricating an active tool holder that acts as the front end of the control strategy. The active tool holder for one-dimensional cutting is shown in Figure 2. This tool holder incorporates a Terfenol-D actuator. This Actuator, with Terfenol-D smart material element, is capable of generating 500 Newton blocked force, up to 50 microns of displacement, and has a bandwidth of 0-5000Hz. This type of actuators is ideal for this application due to its response speed, relatively high force, and large displacements. The actuator is also low-weight, durable, and requires no cooling even when operated for extended periods of time.

As a sum up, the aforementioned theoretical and experimental work [1, 2, 3] has shown that a) the machine tool structure has significant effect on the cutting process and b) the active control strategy using the proposed Kalman based controller has demonstrated high effectiveness in isolating the tool from the machine tool structural vibration, thus improving the surface texture of the workpiece. This control strategy could also be implemented in many similar vibration isolation problems such as milling, drilling, automobile suspension, and vibration cancellation applications.

The proposed work is intended as a continuation of the previous work and will focus on the

two-dimensional controller design and implementation based on the conclusions drawn from the previous work done, which shows that machine tool dynamics in both feed and radial directions have significant effect on the surface profile, yet little work (theoretical and experimental) has been done on this important subject [1, 2, 3, 41].

**3. Project No. CIM/DISCLOSE/248 Investigators: Dr. Haider Madani (CIM)
Dr. Reginald S.O. Wallace**

TITLE: Corporate Disclosure and Reporting Practices in the Gulf Cooperative Council Countries: A Cross National Comparative Investigation

Abstract:

The proposed study seeks to determine the extent of corporate compliance with financial reporting and disclosure requirements of the countries in Gulf Cooperative Council (GCC). Further, the relative effects of certain corporate-specific characteristics on the extent of compliance with the requirements will be investigated. The disclosure of mandated information in the annual reports of the public companies that will be sampled in GCC countries will be captured over a period of three years with the help of a disclosure index. A multivariate regression analysis will be conducted to ascertain which corporate-specific characteristics are determinants of the extent by which the GCC companies comply with reporting requirements. The results of the proposed study should aid in any public policy that seeks to improve corporate financial reporting and disclosure practices, and securities regulation in GCC countries.

4. Project No. ME/POROUS-MEDIA/249 Investigator: Dr. Ibrahim Dincer (ME)

TITLE: Porous Media in Modern Technologies, Energy, Electronics, Biomedical and Environmental Engineering (Bookwriting Project)

Abstract:

Engineering is racing toward smaller scales and more complex multi-scale systems. In this book we report several developments that are important to the effort of maximizing the performance of complex flow systems. The main thought is that in the beginning the flow architecture is not known, and that it is malleable. The flow system can morph into better and better configurations. No designer can evaluate the infinity of possible flow configurations. An effective *strategy* is needed for the conceptual design and optimization of macroscopic systems that employ progressively smaller scales.

The need for considering the broad picture—the macroscopic system—is great and universal. No matter how successful we are in discovering and understanding small-scale phenomena and processes, we are forced to face the challenge of assembling these invisible elements into palpable devices. The challenge is to *construct*, i.e., to assemble and to optimize while assembling. This challenge is becoming more difficult, because while the smallest scales are becoming smaller, the number of components and the complexity of the useful device (always macroscopic) become correspondingly greater.

This is a text and reference book on the fundamentals of flows in porous media and the

key roles played by these advances in technologies that are important today and in the foreseeable future. The fundamental topic of flows in porous media is the vehicle for bring together a long list of critically important issues from diverse fields such as energy, civil, bio, chemical, electronics and environmental engineering. This is an interdisciplinary book, because these many technological issues are being brought together with purpose—they are current and important, and are supported by a common scientific structure: the principles and behavior of flows in porous media.

**5. Project No. CY/IND.CHEM/250 Investigators: Dr. M. Farhat Ali (Chem)
Dr. Bassam El-Ali (Chem)**

TITLE: Handbook of Industrial Chemistry: Organic Chemicals (Bookwriting Project)

Abstract:

The organic chemical industry is an important branch of industry and its structure usually centers around petroleum and hydrocarbon derived chemicals. The volume text of available books is generally lacking in covering other very important non-petroleum based organic industries such as paints, dyes, edible oils, fats and waxes, soap and detergents, sugar and starch, fermentation, chemical explosives, agrochemical industries. Although there are comprehensive chapters on these topics in a number of encyclopedia and handbooks, a single volume text is lacking that describes concisely the current state of such industries.

The proposed book will focus primarily on the chemical processing of raw materials other than petroleum and hydrocarbons into useful and profitable products which are in general use as consumer goods. The book will address the needs of both students and practicing chemists and chemical engineers. It is intended to be a primary source of information for the young practicing professionals who wish to broaden their knowledge of the organic process industry as a whole. The book will also serve as a textbook for advanced undergraduate students. The book will be organized into 14 chapters.

6. Project No. CY/GEN.CHEM/251 Investigator: Dr. Salah Sultan (Chem)

TITLE: General Chemistry (Bookwriting Project)

Abstract:

The book would be useful as a text book for students in all universities in the region studying Sciences, Engineering, Medicine and Pharmacy levels 1 & 2. It is also useful as a general reference material for college students as well as the general public. Messrs. Obeican Publishing House, Riyadh, one of the reputed publishers of educational books and literature has already evaluated the book and revised the Arabic content and will be the main publisher and distributor. The book comprises 21 chapters covering the topics: Matter and Measurements, Atoms, ions and molecules, Chemical reactions and stoichiometry, Electronic structure of atoms, Chemical bonds, Molecular structure, The,

periodic table and the properties of elements, Gases, Solutions and solids, Solvents, Thermochemistry and spontaneity, Chemical equilibrium, Kinetics, Precipitation reactions, Acids and basis, Oxidation-reduction, Electrochemistry, Metals, Coordination compounds, Organic Chemistry, Nuclear Chemistry.

**7. Project No. EE/ROBUST/252 Investigators: Dr. A.H. Abdur-Rahim (EE)
Dr. Samir Al-Baiyat (EE)**

TITLE: Robust Shunt Connected FACTS Devices for Power Systems Damping Improvements

Abstract:

Parallel FACTS devices like SVC and STATCOM are normally used in power system for voltage support at the bus they are connected to. Besides improvement of voltage profile and reactive power flow, properly controlled SVC and STATCOM devices can also offer extra damping to the system. This research addresses the aspect of design of robust controllers for these two devices to provide damping to the power system over a good range of operating conditions.

The power system models will be developed including SVC and STATCON devices. A nominal system will be obtained by linearization of the nonlinear dynamics. Methods of multiplicative uncertainty will be employed to model the variations of the operating points in the system for the robust controller design. The design will be carried out applying robustness criteria for stability and performance. It is proposed that a loop-shaping method will be employed to select a suitable open-loop transfer function, from which the robust controller will be constructed. The proposed controller will be tested through a number of disturbances including three-phase faults. The simulation results obtained with the robust controller will also be compared with fuzzy logic design for SVC and STATCOM. An analysis will be carried out considering the applicability of the controllers to real systems.

**8. Project No. CHE/MIXING/253 Investigator: Dr. Habib Zughbi (CHE)
Mr. Zahid Khokhar (CHE)**

TITLE: Numerical and Experimental Investigations of Mixing in Fluid Jet Agitated Tanks: Effects of Geometry and Flow Asymmetry

Abstract:

Mixing plays an important role in the chemical, processing and allied industries. Mixing is usually used as a means of achieving a desired degree of homogeneity and it may also be used to promote heat and mass transfer. Mixing can be achieved by many means including mechanical agitation and agitation with a fluid jet impingement. Until recently very little has been known about the fluid flow, velocity field and mixing characterization that are generally involved in these systems. As a result, impinging jet mixers have been designed individually

for each specific process, and optimization of such systems has been done largely by trial and error.

Recently, Zughbi and Rakib⁴⁷⁻⁴⁹ simulated the performance of an impinging jet mixer, and investigated the effects on mixing time of parameters such as location and configuration of the injection tuyere, and the jet Reynolds number using a Computational Fluid Dynamics (CFD) model. A general purpose Computational Fluid Dynamics (CFD) software, FLUENT, was used for the simulations.

Zughbi and Rakib's results are in good agreement with the published experimental data of Lane and Rice²⁰⁻²³. The model showed that there is an optimum angle of jet injection for a particular jet location. The optimum angle predicted is not 45° as recommended by Coldrey³ and adopted by Lane and Rice²⁰. In fact the optimum angle was found to be 30°. This optimum is not universal and different optimum angles exist for jet injection at different tank heights. For jet injection at any fixed angle of elevation, there again exists an optimum position along the height of the tank as far as the mixing time is concerned. Zughbi and Rakib⁴⁸ also showed that the rollover of the jet after hitting the tank walls is a strong determining factor for the mixing time. They also showed that significant reduction in the mixing time is possible if two side jets are used instead of one.

This proposal details plans for further numerical and experimental investigations of mixing in a fluid jet agitated tank. The investigation concentrates on the effects of geometric factors, such as asymmetric flow caused by the injection of the jet at an angle to a vertical plane passing through the axis of the tank. The effects of baffles inserted in the tank on mixing time will also be investigated. Asymmetric flow is expected to cause further reduction in mixing time. The general numerical model of mixing in a fluid jet agitated tank will be modified so that it simulates the new conditions. Results of the numerical models will be validated against own experimental results.

An experimental investigation of mixing in a fluid jet agitated tank will also be carried out using electric conductance and temperature as the measured variables. This will make the study of parameters, not reported in the literature, possible. Accomplishing the above tasks of investigating mixing in fluid jet agitated tank will be an effective step with many applications in the local petrochemical, oil and other industries. Such an investigation will help deciding the optimum design of a fluid jet mixer.

**9. Project No. MS/STOCHASTIC/254 Investigators: Dr. Ibrahim Rahimov (Math)
Dr. Hassen Muttalak (Math)**

**TITLE: Investigation of a Random Sum of Indicators with Applications in
Branching Stochastic Processes**

Abstract:

The main object of investigations in the theory of branching stochastic processes is the number of individuals at a given time. However there are other important characteristics describing tree structure of the process. In this project unified method for investigation of such functionals of branching stochastic processes related their genealogy would be developed. The method will be based on construction and study of a special form sum of

independent indicator functions. Using the method limit distributions for generalized reduced processes, for the number of exceedances and for the number of productive ancestors in large populations will be obtained. Possibilities of application in other kind processes will be investigated. This kind of functionals are important for applications of branching stochastic processes in population dynamics, nuclear physics, computer sciences and other areas of the science and technology.

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. Esam Hamad	A New Statistical Thermodynamic Approach to the Excess Gibbs Energy CHE/THERMO/183
Chemical Engineering	Dr. Ibnelwaleed A. Hussein	Rheology and Miscibility of Metallocene LLDPE in LDPE and HDPE: Influence of Molecular Parameters (CHE/RHEOLOGY/223)
Chemical Engineering	Dr. Sleem-ur-Rahman Dr. Ramazan Kahraman Dr. M.A. Abul-Hamayel	Corrosion Protection of Steel by Catalyzed Polypyrrole Films (CHE/C-PROTECTION/227)
Chemical Engineering	Dr. Basel Abu-Sharkh (Che) Dr. Abdullah Al-Sunaidi (Phys)	Simulation and Model Development for the Equation of State and Phase Diagrams of Self-Assembling Nonadditive Hard Chain Copolymers, Mixtures and Solutions (CHE/SIMULATION/228)
Chemical Engineering	Dr. Ibrahim M. Abu-Reesh	Predicting the Performance of Immobilized Enzyme Reactors Performing Enzymatic Lactose Hydrolysis: Theoretical Study (CHE/ENZYME/233)
Chemical Engineering	Dr. Habib Zughbi Mr. Zahid Khokhar	Numerical and Experimental Investigations of Mixing in Fluid Jet Agitated Tanks: Effects of Geometry and Flow Asymmetry

(CHE/MIXING/253)

College / Department -----	Principal Investigator / Co-Investigator(s) -----	Title of the Project and its Code -----
Civil Engineering	Dr. Naser A. Al-Shayea	Elastoplastic-Damage Model for 3-D Stress-Strain Behavior of Soil (CE/SOIL/239)
Electrical Engineering	Dr. Husain Al-Duwaish (EE)	Advanced Multivariable Control of a Gas Plant (EE/ADV.CONTROL/231)
Electrical Engineering	Dr. Abdelmalek Zidouri (EE) Dr. Muhammad Sarfraz (ICS)	Automatic Text Recognition: A Need in Arabization (EE/AUTO-TEXT/232)
Electrical Engineering	Dr. Mohammad A. Khan (EE) Dr. Umer Al-Suwailem (EE) Dr. Mohamed Mohandes (EE)	Trellis-Coded Residual Vector Quantization based Subband Image Coding (EE/TRELLIS/236)
Electrical Engineering	Dr. Husain A. Al-Jamid (EE)	Optimization of the Method of Lines for the Analysis of Photonic Bandgap Structures (EE/BANDGAP/245)
Electrical Engineering	Dr. Abu Hamed Abdur-Rahim Dr. Samir Al-Baiyat (EE)	Robust Shunt Connected FACTS Devices for Power System Damping Improvements (EE/ROBUST/252)
Mechanical Engineering	Dr. Mehmet Sunar Dr. Fouad Al-Sunni Dr. S.A. Al-Kaabi	Substructural Control of Fuzzy Flexible Systems ME/FUZZY/197
Mechanical Engineering	Dr. Bassem El-Bedoor Mr. Lahouri Ghouti	An Experimental Study on Blade Vibration Measurements in Turbo-machinery (ME/BLADE-VIBRATION/215)
Mechanical Engineering	Dr. Ahmed S. Al-Garni (ME) Dr. Saad Ahmed (ME) Dr. Ahmet Z. Sahin (ME)	An Experimental Investigation of a Leading Edge Rotating Cylinder for Aircraft Operation at High Incidence

(ME/CYLINDER/237)

College / Department -----	Principal Investigator / Co-Investigator(s) -----	Title of the Project and its Code -----
Mechanical Engineering	Dr. Syed M. Zubair Mr. Jameelur Rahman Khan Mr. Mohammad Yaqub	The Impact of Risk-Based Fouling on the Performance of Cooling Towers, Evaporative Condensers, and Evaporative Fluid Coolers (ME/RISK FOULING/230)
Mechanical Engineering	Dr. Hassan M. Badr Dr. M.A. Habib Dr. S.A.M. Said Dr. R. Ben Mansour	Turbulent Natural Convection Flow in Parallel and Converging-Plate Vertical Channels (ME/TURBULENT/246)
Mechanical Engineering	Dr. Ameen El-Sinawi	Two-Dimensional Vibration Suppression in Machining Using a Kalman-Estimator-Based Feed-Forward Active Controller (ME/KALMAN/247)
Mechanical Engineering	Dr. Ibrahim Dincer (ME)	Porous Media in Modern Technologies, Energy, Electronics, Biomedical and Environmental Engineering (Bookwriting Project) (ME/POROUS-MEDIA/249)
College of Computer Science & Engineering		
Computer Engineering	Dr. Sadiq M. Sait Dr. Habib Youssef Dr. Aiman El-Maleh	Iterative Heuristics for Timing and Low-Power VLSI Standard Cell Placement (COE/ITERATIVE/221)
Systems Engineering	Dr. Umar Al-Turki Dr. Shokri Z. Selim Dr. Abdulbasit Andijani	On Stochastic Single Machine Early-Tardy Scheduling SE/SCHEDULE/191
Accounting & MIS	Dr. Haider Madani Dr. Reginald S.O. Wallace	Corporate Disclosure and Reporting Practices in the Gulf Cooperative Council Countries: A Cross-National Comparative Investigation (CIM/DISCLOSE/248)

College / Department -----	Principal Investigator / Co-Investigator(s) -----	Title of the Project and its Code -----
College of Sciences		
Chemistry	Dr. Anvarhusain Isab Dr. H.P. Perzanowski Dr. A.R. Al-Arfaj	^1H , ^{13}C , ^{15}N , ^{77}Se and ^{109}Ag NMR Studies of M(I)- Imidazolidine-2-Thione and Imidazolidine-2-Selenone Complexes (Where M = Ag^+ and Au^+) (CY/NMR-STUDIES/214)
Chemistry	Dr. Wolfgang Forner	Nonlinear Charge Carriers in Polyparaphenylene CY/NONLINEAR/216
Chemistry	Dr. M. Farhat Ali Dr. Bassam El-Ali	Handbook of Industrial Chemistry: Organic Chemicals (Bookwriting Project) (CY/IND.CHEM/250)
Chemistry	Dr. Salah M. Sultan	General Chemistry (Book- writing Project) (CY/GEN.CHEM/251)
Mathematical Sciences	Dr. Ibrahim Rahimov Dr. Hassen Muttlak	Investigation of a Random Sum of Indicators with Applications in Branching Stochastic Processes (MS/STOCHASTIC/254)
Mathematical Sciences	Dr. Rajai S. Alassar Dr. Mohamed El-Gebeily Dr. Faisal A. Fairag	On the Effect of Sphericity on Forced Convection (MS/SPHERICITY/225)
Mathematical Sciences	Dr. Abul Hassan Siddiqi Dr. Khaled M. Furati	Fast Wavelet Algorithms for Simulating Safing Sensor (MS/SAFING-SENSOR/ 234)
Mathematical Sciences	Dr. Salim Messaoudi	On Heat Propagation and Thermoelasticity by Second Sound (MS/SOUND/238)

College / Department -----	Principal Investigator / Co-Investigator(s) -----	Title of the Project and its Code -----
Mathematical Sciences	Dr. M. Aslam Chaudhry Dr. M. Asghar Qadir	Formulation Properties and Applications of the Gamma-Zeta Functions (MS/ZETA/242)
Mathematical Sciences	Dr. Walid Al-Sabah	A New Test of Symmetry and Normality (MS/SYMMETRY/244)
Mathematical Sciences	Dr. Abdelwahab Kharab	An Introduction to Numerical Methods: A MATLAB Approach (MS/MATLAB-2/243)
Physics	Dr. Azzedine Zerguine Dr. Maamar Bettayeb	Mixed l_2 - l_p Norm Adaptive Algorithms for System Identification: Application to Echo Cancellation (PH/ECHO/193)
Physics	Dr. M.I. Al-Jarallah Dr. M.S. Musazay Mr.E.U. Abu-Azzah	Radon Exhalation Rates from Building Materials and Correlation with Radium Content (PH/RADON/220)
Physics	Dr. S.M. Al-Amoudi Dr. H. Bahlouli	Real-Time Dynamics of Bose-Einstein Condensates (PH/BOSE/241)

College / Department -----	Principal Investigator / Co-Investigator(s) -----	Title of the Project and its Code -----
College Environmental Design	of Dr. Adel Aldosary Mr. Shaibu Bala Garba	An Investigation into the Application of GIS for Infrastructure and Facilities Management in Saudi Arabia (CRP/GIS/235)

4. RESEARCH PROPOSALS UNDER REVIEW

S. No.	Name of Faculty & Department	Title of the Research Proposal
1.	Dr. Ismail M. Budaiwi (ARE) Dr. Adel A. Abdou Dr. Thamer A. Al-Rugaib Dr. Mohammad S. Al-Hamoud	Total Indoor Environmental Quality and Space Utilization in the KFUPM Main Library
2.	Dr. Saeed M. Al-Amoudi (Phys) Dr. H. Bahlouli (Phys)	Real-Time Dynamics of Bose-Einstein Condensates
3.	Dr. Abu Hamed Abdur-Rahim (EE) Dr. Samir A. Al-Baiyat (EE)	Robust Shunt Connected FACTS Devices for Power System Damping Improvements
4.	Dr. Salim Messaoudi (Math)	On Heat Propagation and Thermoelasticity by Second Sound
5.	Dr. M. Aslam Chaudhry (Math) Dr. M. Asghar Qadir (Math)	Formulation Properties and Applications of the Gamma-Zeta Functions
6.	Dr. Abdel-Aal H. Mantawy (EE) Dr. Mohamed H. Shwehdi (EE)	Optimal Capacitors Placement on Distribution Systems: New Formulation and Solution
7.	Dr. Sulaiman S. Al-Khattaf (Che) Dr. Kevin Loughlin (Che)	Industrial Applications Involving Diffusion and Adsorption on para-Xylene and 1,3,5-tri-isopropylbenzene in Molecular Sieves
8.	Dr. Habib Zughbi (Che) Mr. Zahid Khokhar (Che)	Numerical and Experimental Investigations of Mixing in Fluid Jet Agitated Tanks: Effects of Geometry and Flow Asymmetry
9.	Dr. Hassan M. Badawi (Chemistry) Dr. Abdulaziz Al-Suwaiyan (Chemistry) Dr. Wolfgang Forner (Chemistry)	Analysis of Vibrational Spectra, Ring Puckering and Internal Rotation for Nitro Derivatives of Some Heterocyclic Compounds
10.	Dr. Anvarhusain Isab (Chemistry) Dr. M.I.M. Wazeer (Chemistry)	Multinuclear NMR Study of the Interactions of Some Sulfur Containing Biologically Important Ligands with CD^{2+} and Hg^{2+} Ions
11.	Dr. Mohammad I. Al-Khalil (CEM) Dr. Soliman Al-Mohawis (CEM) Dr. Sadi Assaf (CEM)	Comparative Analysis of Contractor Prequalification Methods
12	Dr. Sadiq Sait Mohammad (COE) Dr. Mostafa Abd-El-Barr (COE)	Iterative Heuristics for the Design of Combinational Logic Circuits
13	Dr. Omar Abdullah Zaid (Acct. & MIS)	Accounting Foundations and Principles: The Islamic Perspective

**5. BOOK-WRITING PROPOSALS SUBMITTED FOR FUNDING
WHICH ARE UNDER REVIEW (2002-2003)**

S. No.	Name of Faculty & Department	Title of the Research Proposal
1.	Mr. Nuruzzaman (Electrical Engineering)	Computations, Problem Solving, and Programming in MATLAB for Beginners
2.	Dr. Muhammad Sarfraz (ICS)	Geometric Modeling: Techniques, Applications, Systems and Tools
3.	Dr. Ellahi Ishteeaque (Architecture)	The Native-Architecture of Saudi Arabia

6. SABBATICAL LEAVE PROPOSALS RECEIVED FOR 2002/2003

College/ Department	Name of Faculty	Title of Sabbatical Proposal	Host Institution
College of Sciences Mathematics Department	Dr. Suliman Al- Homidan	Solving the Hankel Matrix Approximation Problem via Interior- Point Methods of Semi- Definite Programming	University of Waterloo, Canada.
College of Sciences Earth Sciences Department	Dr. Muhammad Makkawi	Forecasting the Impact of Water Demand on Groundwater Aquifers: Stochastic Model Development and Application	Colorado School of Mines, USA and Saudi Aramco.

7. SABIC AND FAST TRACK PROPOSALS RECEIVED DURING NOVEMBER 2002 FOR FUNDING

S. No.	Name of Faculty	Department	Title of the Proposal
SAB-2003-1	Dr. Abdelwahab Kharab Dr. Mustafa Bouchama Dr. Ahmed Yamani	Mathematics Civil Engg. Electrical Engg.	Penetration of a Rigid Body into a Soil Medium
SAB/2003-2	Dr. F.D. Zaman Dr. Khalid Masood	Mathematics Dept.	Seismic Inversion for Damped Wave Equation
SAB/2003-3	Dr. Hassen Muttalak Dr. Walid Al-Sabah	Mathematics Dept.	CUSUM and EWMGA Control Charts Using Ranked Set Sampling
SAB/2003-4	Dr. Ahmet Z. Sahin Dr. Ramazan Kahraman	Mechanical Engg.	Exergy Analysis of Turbulent Viscous Flow Through Pipes
SAB/2003-5	Dr. Muhammad Shafiq Dr. Fouad Al-Sunni Mr. Sayyid Anas Vaqar	Systems Engineering	Adaptive Tracking Based on FIR Filters
SAB/2003-6	Dr. Ramazan Kahraman Dr. Ahmet Z. Sahin	Chemical Engg. & Mech. Eng.	Synergistic Effect of Moisture Sorption and the Filler Content on the Mechanical Performance of Metal Joints Bonded by Aluminum Filled Epoxy (Old Project, reviewed and approved in 2001)
SAB/2002-7	Dr. Ahmed Z. Al-Garni Dr. Mehmet Sunar	Mechanical Engineering	Optimal Control for Aerospace Plane Using Closed-Form and Numerical Solutions
SAB/2002-8	Dr. Mohammed Sadiq Sohail Dr. Obaid Saad Al-Abdali	Management & Marketing	Incidence and Value of Logistics Outsourcing: A Saudi Arabian Perspective
SAB/2002-9	Dr. Onur Toker (SE) Dr. Mehmet Sunar (ME)	Systems Engineering	A Substructural Control Technique by H-Infinity Methods for Nonlinear and Fuzzy Structures
SAB/2002-10	Dr. Salah Al-Dulaijan (CE) Dr. Mesfer Al-Zahrani (CE) Dr. M. Maslehuddin (RI)	Civil Engg.	Effect of Sulfate Concentration and Cation Type of Sulfate Attack in Plain and Blended Cements
SAB/2002-11	Dr. Muaammer Kalyon	Mechanical Engineering	Continuous Proximate Time-Optimal Track-To-Track Seek Control of HDD Read/Write Heads
SAB/2002-12	Dr. A.B. Thaheem Dr. M.S. Samman	Mathematics	On Centralizers of Semiprime Rings
SAB/2002-13	Dr. Saed Spuzic Dr. Khalid Al-Dheyilan Dr. Meyassar Al-Haddad Mr. M. Abdul Samad	Mechanical Engineering	Contribution to Developing Wear Resistant Materials via Rapid Testing
SAB/2002-14	Dr. Anvarhusain Isab Dr. Waqar Ashraf	Chemistry	^{13}C , ^{31}P and ^{77}Se NMR Studies of the Redox and Exchange Reactions of Gold(I) Drugs with Bis(alkylthio) selenides of Biological Thiols
SAB/2002-15	Dr. Muhammad Al-Zahrani Engr. Mohammad Essa Engr. Omar Al-Attas	Civil Engineering	Industrial Pollutant removal using locally produced activated amended sand
SAB/2002-16	Dr. Muhammad Al-Zahrani Engr. Junaid Laiq Syed	Civil Engineering	Risk and Reliability Analysis of Water Distribution System

SAB/ 2002-17	Dr. Nasser-eddine Tatar Dr. Mohamed Ridha Alaimia	Mathematics	Asymptotic Behavior of Solutions to Problems with Non-local Terms
SAB/ 2002-18	Dr. Mohammad Hassanain Dr. Ismail M. Budaiwi Dr. Adel A. Abdou	Architectural Engg. Dept.	Assessment of Life Safety Systems in Indoor Environmental Quality in Schools in Saudi Arabia
SAB/ 2002-19	Dr. Abdalla M. Abulkibash Dr. Salah M. Sultan	Chemistry	Differential Electrolytic Potentiometry Combined with Flow Injection as a Potential Detector for Complexed Reactions
SAB/ 2002-20	Dr. Azzedine Zerguine Dr. Mohamed Deriche	Electrical Engineering	Development of a New Blind Equalization Algorithm using Minimum-Disturbance Technique with Applications to Communication Channels
SAB/ 2002-21	Dr. Mohammad Al-Qahtani Dr. Laui Al-Hadhrami	Mechanical Engineering	Flow and Heat Transfer Prediction of Smooth and Pin-fin Narrow Rectangular Channels (AR=10) oriented at 120° from the Direction of Rotation
SAB/ 2002-22	Dr. M.A. Abido Dr. Y.L. Abdel-Magid	Electrical Engineering	Robust Load Frequency Controllers for Multiarea Interconnected Power Systems
SAB/ 2002-23	Dr. Abdullah Zaid	Accounting & MIS	Accounting Foundations: The Islamic Perspective
SAB/ 2002-24	Dr. Abdullah Zaid	Accounting & MIS	Accounting Principles: The Islamic Perspective
SAB/ 2002-25	Dr. Ibrahim M. Al-Jabri Dr. Haider M. Fraihat	Accounting & MIS	Assessing skills and knowledge of IT Professionals in Saudi Arabia
SAB/ 2002-26	Dr. Mohamed Adnan Landolsi	Electrical Engineering	Optimized Design and DSP Implementation of CDMA PN Code Synchronization Systems
SAB/ 2002-27	Dr. Zakariya Al-Hamouz Dr. Ahmad Masoud	Electrical Engineering	Online, Blind Identification of Induction Motor Defects based on the Spectral Contents of its Stator Current
SAB/ 2002-28	Dr. Khaled Mezghani Mr. Mohammed Abdul Samad	Mechanical Engineering	Effect of Mold temperature on Mechanical Properties of Poly(ethylene terephthalate)
SAB/ 2002-29	Dr. Maung Than Htun Dr. Ali El-Rayyes	Chemistry	Photochemical Studies on 8-Amino-1-Naphthol-3, 6-Disulfonate by Fluorescence Spectroscopy
SAB/ 2002-30	Dr. Muhammad Waqar Ashraf Dr. Muhammad Al-Malack	Chemistry Res. Inst.	Supported Liquid Membrane Technology for the Separation of Organic Contaminants from Industrial Waste Effluents
SAB/ 2002-31	Dr. Abdulwaheed M. Abdul-Sattar Dr. Muhammad F. Khan	Computer Engineering	A Testbed for Integrated, Content-Aware, Application Layer Level Networking
SAB/ 2002-32	Dr. Mostafa Abd-El-Barr, Mr. Louai Al-Awami Mr. Ahmad Khayyat Mr. Rami A. Al-Ghanmi	Computer Engineering	Analysis of Heuristic Techniques for Synthesis of MVL Functions Using Current-Mode CMOS Circuits
SAB/ 2002-33	Dr. N. Merah Dr. Zafarullah Khan	Mechanical Engg.	Temperature and Frequency Effects on Fatigue Crack Propagation Rate in CPVC and HDPE Pipes
SAB/ 2002-34	Dr. Ameen H. El-Sinawi Dr. Abdelaziz Bazoune	Mechanical Engineering	Experimental Verification of a Kalman Estimator-based Technique Developed for Estimating and Monitoring the vibration of a turbine blade mounted on

			a flexible disk using two-dimensional measurements of hub (bearing) vibration
SAB/ 2002-35	Dr. Amro Al-Qutub Dr. Ibrahim Allam	Mechanical Engineering	Dry Wear Properties of Particulate Matrix Composite
SAB/ 2002-36	Dr. Nassar M. Shaikh Dr. Ibrahim Al-Jabri	Accounting & MIS	The Impact of Internet Addiction on Academic Performance: An Exploratory Study on KFUPM
SAB/ 2002-37	Dr. M. Deriche Dr. M.Mohandes Dr. Jamil Bakhawain	Electrical Engineering	A New Algorithm for Person Identification Using the Iris
SAB/ 2002-38	Dr. Mohammad Antar Dr. Syed M. Zubair Mr. Irfan Hussaini	Mechanical Engineering	The Effect of Superheating and Subcooling on the Total Heat Exchanger Area for a Feed Water Heater in a Power Plant
SAB/ 2002-39	Dr. Khaled Al-Dheyilan Dr. Zafarullah Khan Dr. Faleh Al-Sulaiman Dr. Iyad Al-Zaharnah	Mechanical Engineering	A Study of the Low-Velocity Impact Resistance of E-Glass Polyester Composite Materials

8. PUBLICATIONS IN REFEREED JOURNALS

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2. "Rheological Study of the Influence of Mw and Comonomer" **Tayyab Hameed, Ibbelwaleed A. Hussein,** Type on the Miscibility of m-LLDPE and LDPE, Polymer, 43(25), 6911-6929. **2002.**
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2. "Optimal Design of Power System Stabilizers Using Evolutionary Programming," **M.A. Abido and Y.L. Abdel-Magid** IEEE Transactions on Energy Conversion, Vol. 17, No. 4, December 2002.
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5. "Performance of Silicone Rubber Insulators in Desert Area of The Eastern Region of Saudi Arabia", **Al-Hamoudi I. and Al-Hamouz Z.**, Transmission and Distribution World Magazine, USA, September 2002.
6. "Variable weight Mixed-Norm Adaptive Algorithm," **A. Zerguine**, Circuits, Systems, Signal Processing Journal, Vol. 21, No. 6, pp. 547-566, November 2002.
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 3. "Numerical Simulation of Mixing in a Jet Agitated Large Horizontal Cylindrical Tank", **D. Zughbi and M. A. Rakib**, Sixth Saudi Engineering Conference, KFUPM, Dhahran, December 14-17, 2002
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20. "A Comparison of Gaussian Approximation Methods in the Error Analysis of CDMA with OQPSK Spreading," **M.A. Landolsi**, 14th International Conference on Wireless Communications (WIRELESS'02), July, 2002, Calgary, Alberta, Canada.
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3. "Experimental Investigation of the Flow Past a Low-rise Building", **Mahmood M.**

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4. "The Effect of Secondary Phases on the Localised Corrosion of Hypoeutectic Al-Mg-Si Alloy", **Zaki Ahmad and B.J. Aleem**, /CCE/9, Proceedings of the International Conference on Composite Engineering, San Diego, pp. 15-17, July 1-6, 2002.
 5. "Modeling and Simulation of Weldlines in Injection Molding Process" **Mezghani K.**, the 6th Saudi Engineering Conference, December 2002, Saudi Arabia, v. 2, pp 335-347.
 6. "Jet impingement onto a hole with constant wall temperature", **Yilbas B.S. Shuja S.Z. and M.O. Budair**, ISTP13 Symposium, Victoria, Canada, July 13 – 19, 2002.

College of Sciences

Chemistry Department

1. "Hydroformylation and Acetalization of Styrene Derivatives Catalyzed by Rh(III)-Phosphite and Rh(III) Supported on MCM-41-Phosphite Systems". **Dr. Bassam El Ali**, Lecture at the 224th American Chemical Society Meeting (Aug. 18-22, 2002), Boston-USA.
2. Based on the published paper: " $H_{3+n}PMo_{12-n}O_{40}$ – Catalyzed selective oxidation of benzoin to benzil or aldehydes and esters by dioxygen", **Dr. Bassam El Ali** attended the 8th International Conference on the Chemistry of the Platinum Group Metals (July 7-12, 2002), Southampton, England.
3. "Remote Measurement of Flow Rates of Polluted Water With Doppler Velocimetry", M. A. Gondal, J. Mastromarino and **Uwe K. A. Klein**, presented at the 6th Saudi Engineering Conference, 14-17 December, 2002, Dhahran, Saudi Arabia.
4. "Catalytic Conversion of Waste Plastics/Petroleum Resid Mixtures into Transportation Fuels", **M. N. Siddiqui; M. F. Ali and S. H. H. Redhwi**: *Preprints, American Chemical Society, Division of Petroleum Chemistry*, Volume 47, No. 4, August, 2002, p. 374, Boston, USA.
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6. "Coproducting of Plastics with Petroleum Residues" **M. F. Ali, M. N. Siddiqui**

- and S. H. H. Redhwi**, *Sixth Saudi Engineering Conference*, December 14-16, 2002, KFUPM, Dhahran, Saudi Arabia .
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 11. "Monitoring the Ageing and Disintegration of Partially fermented Leaves using EPR" **M. Khaled** and **M. A. Morsy**, *International Conference on Reactive Intermediates and Reaction Mechanisms*, July 7-12, 2002, Centro Stefano Franscini, Ascona, Switzerland (2002).
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Earth Sciences Department

1. "Identifying and mapping key diagenetic lithotypes; A new approach in modeling carbonate reservoirs", **Al Eid Gazi, A., Kamal, R.A., Cole, J.C., Hussain, M., Imam, B. and Hughes, G.W.** *GEO 2002*, Bahrain, April 15-18, 2002.
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3. "Petroleum geology education at KFUPM", **Hussain, M.** Invited Talk, *AAPG Ann. Conf.*, Houston, March 9-14, 2002.

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5. "Maximum Entropy Inversion of bulk rock properties", **Korvin, G.** Symp. on "Arreglos de Fractura", UNAM, Mexico City, 25 Febr., 2002.
6. "Fractal scattering from porous medium", **Oleschko, K. and Korvin, G.** Day on Diffraction, St Petersburg, Russia, 5-8 June, 2002.
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8. "Laser induced breakdown spectroscopy of geological samples", **Gondal, M.A., Ahmed, Z., Khan, M.A. and Baig, A.** The 6th Saudi Engineering Conference, KFUPM, Dhahran, 14-17 December, 2002. Conference Proceedings Volume 5, pp. 337-344.
9. "A Quaternary Eolinite Sequence in the Arabian Gulf Coastal Region, Northeastern Saudi Arabia: A Modern Analogue for Oomoldic Porosity Development in an Arid Setting", **Hussain, M., Hariri, M. and Warren, J.K.**, Abstracts with Programs, AAPG International Conference, Cairo, Egypt, October 27-30, 2002.
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13. "Lithofacies and geometry of the Cretaceous fluvial/lacustrine sandstone of Northern Sudan: outcrop analogue for the Muglad rift basin reservoirs", **Osman, A.** GEO 2002, Bahrain, April 15-18, 2002.
14. "Depositional environments and reservoir heterogeneity of Bentiu Formation (Albian- Cenomanian), Muglad Rift Basin, Sudan", **Idriss, A. and Osman, A.** AAPG Cairo 2002 International Conference. Extended Abstract.
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Mathematics Department

1. "COMMON FIXED POINTS FROM BEST APPROXIMATION", **A.R. KHAN**, 26TH SUMMER SYMPOSIUM IN REAL ANALYSIS, WASHINGTON AND LEE UNIVERSITY, LEXINGTON, VIRGINIA, USA, JUNE 25-29, 2002.
2. "On Numerical Methods and Applications (NM & A02)", **B. Chanane**, Fifth International Conference Borovets, Bulgaria, August 20-24, 2002.
3. "Spectral Theory Network Conference III", **B. Chanane**, Sussex, UK, December 16-18, 2002.
4. "Combined Methods for Toeplitz Matrix Approximation Methods", **Al-Homidan, S.**, Current Trends in Industrial and Applied Mathematics (Ed. P. Manchnda, K. Ahmad and A.H. Siddiqi), Anamaya Publisher, (2002), 69-78.
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Physics Department

1. "Measurement of Radon Exhalation Rates from Granites using Gas Analyzer and Nuclear Track Detectors," **M. I. Al-Jarallah, Fazal-ur-Rehman, M. S. Musazay** and F. Abu-Jarad. Proceedings from the International Conference on Radioactivity in the Environment, pp 234-237, 1-5 September 2002, Monaco, France.
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 5. "Uniformity in Radon Exhalation from Construction Materials using Can Technique," E. A. El-Amri, **M. I. Al-Jarallah**, F. Abu-Jarad, and **Fazal-ur-Rehman**. Presented in 21st International Conference on Nuclear Tracks in Solids, held in New Dehli, India, 21-25th October 2002.
 6. "Indoor Radon Survey in Dwellings of some Regions in Yemen," H. Khayrat, **M. I. Al-Jarallah**, **Fazal-ur-Rehman**, F. Abu-Jarad. Presented in 21st International Conference on Nuclear Tracks in Solids, held in New Dehli, India, 21-25th October 2002.
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 10. "Synchrotron radiation: An indispensable tool for material science," **M. Faiz**, Proc. GCC Universities Surface Physics Workshop, Muscat, Oman (2002).
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 12. "Photoconversion of methane into higher hydrocarbon and hydrogen using laser," Arfaj, M.A. Gondal, A. Dastageer, **Z.H. Yamani**, M.A. Ali. 3rd Jordanian Intl. Conf of Chem, Jordan April 2002.
 13. "Characteristics of stimulated Raman scattering of Methane," M.A. Gondal, A. Dastageer, **Z.H. Yamani**, M.A. Ali, A. Arfaj. Poster presentation at the International Conference on Laser Probing, July 2002, Belgium.

14. "Photoinduced coupling of methane using pulsed UV laser," M.A. Gondal, **Z.H. Yamani**, A. Dastageer, M.A. Ali, A. Arfaj, 5th International Conference and Exhibition on Chemistry in Industry, Oct. 2002 Bahrain.

College of Industrial Management

Department of Management & Marketing

1. "Financial Reporting and Information Disclosure: Benchmarking for Corporate Governance", **Nasser, A. and Sohail, S.**, International Conference on Corporate Governance-Trends and Challenges in the Millennium, Kuala Lumpur, Malaysia, 29-30 October 2002.
2. "Human Resources Development in Saudi Arabia: A Global Competition for Saudi Companies", Abdulwahab S. AlKahtani, The Fourth Human Resource Development Meeting, The Chamber of Commerce and Industry, Dammam, Eastern Province, December 23-25, 2002.
3. "Saudi Family: An Eco-Cultural Approach", Achoui, M., XVI Congress of the International Association for Cross-Cultural Psychology, Indonesia, July 15-19, 2002.

College of Environmental Design

Department of Architecture

1. "Exploring the Factors that affect the Efficient Utilization of IT in Consulting Offices" **Al-Rugaib Thamer**. The sixth Saudi Engineering Conference, KFUPM, 14-17 DECEMBER 2002. KSA.
2. "Information Technology Effectiveness in Architectural Offices" Information Technology and its applications in Architecture Symposium", **Al-Rugaib Thamer**. 17-18 May 2001. Amman, Jordan.
3. "Computer Application in Architecture: Potentials and Perils, The First Symposium on Application of Computers in Architecture" **Dr. Siddiqi, Anis** Technical University of Jordan, Irbid, Jordan, May 2001
4. "Architectural Design Studio Projects and the Charades of Curriculum", **Dr. Siddiqi Anis**. The 6th Saudi Engineering Conference, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia, October, 2002, Vol. 1. pp 173-186
5. "Student Evaluation of Faculty: A Mirror for Self-Analysis" **Dr. Siddiqi Anis**, The 6th Saudi Engineering Conference, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia, October, 2002, Vol. 1, pp 433-446

6. "Challenge of Writing Architectural Curriculum in the Age of Information Technology, **Dr. Siddiqi Anis**, International Conference on Building Education and Research (BEAR 2003): Construction and Property Education Research, Technology and Collaboration, CIB 089 and University of Salford, Salford, UK, April 9-11, 2003.
7. "Evaluation as A Tool for Development Direction Decision Making: A Case Study of the Khobar Corniche, Saudi Arabia, **A. S. Al Dosary & S. B. Garba (2000)** International Journal of Management, Vol. 17, Number 3, pp.394-405
8. "Computer Aided Instruction in the Teaching of Architectural History in KFUPM: A review of Current Experience and Future Challenges" **Garba S. B. (2002)**, Paper presented at Symposium on Architectural Education in the Kingdom of Saudi Arabia, King Faisal University, Dammam, April 8-10, 2002.

Architectural Engineering Department

1. "Variations of Thermal Conductivity of Insulation Materials Under Different Operating Temperatures" Impact on Envelope Induced Cooling Load", **Budaiwi, I. M. A. A. Abdou, and M. S. Al-Homoud** , Proceedings of the 1st Symposium on Energy Conservation & Management in Buildings, pp.159-173, February 5-6, 2002, Dhahran, Kingdom of Saudi Arabia.
2. "A Systematic Approach for Energy Audit in Mosques", **Abdou, A.A. M. S. Al-Homoud, and I. M. Budaiwi.** Proceedings of the 2nd International Conference on Energy research and Development, April 8-10, Kuwait University, Kuwait.
3. "The Impact of Building Change of Use on Peak HVAC Systems Requirement and Energy Consumption", **Siddiqui, K.A. and M. S. Al-Homoud**, Proceedings of the 1st Symposium on Energy Conservation & Management in Buildings, pp.301-314, February 5-6, 2002, Dhahran, Kingdom of Saudi Arabia.
4. "Directing Muslim Behavior Towards Conserving Energy" **Al-Mawhwakhi, A., Budaiwi, I.,** Proceedings of the 1st Symposium on Energy Conservation & Management in Buildings, pp.39-48, February 5-6, 2002, Dhahran, KINGDOM OF SAUDI ARABIA.. (in Arabic)
5. "Variation of Thermal Conductivity of Insulation Materials Under Different Operating Temperatures: Impact on Envelope-Induced Cooling Load ", **Budaiwi, I., A. Abdou., and Al-Homoud M.,** Journal of Architectural Engineering, Vol. 8, No. 4, pp. 125-132, (2002).
6. "A Systematic Approach for Energy Audit in Mosques", **Abdou, A., Al-Homoud, M., Budaiwi, I. and Khaiyat, S.** the 2nd Inter. Conference on Energy Research, Kuwait, April 8-10, Vol. 1, pp. 77-86 (2002).
7. "Variation of Thermal Conductivity of Insulation Materials Under Different Operating Temperatures: Impact on Envelope-Induced Cooling Load ", **Budaiwi**

- I., Abdou A., and Al-Homoud M.,** Proceedings of the 1st Symposium on Energy Conservation & Management in Buildings, Dhahran, 5-6 February, pp. 159-173, (2002).
8. “The Impact of Cyberspace and Globalization on the Future of Architecture: A Visionary Insight”, **A. Abdou,** Proceedings of the 6th Saudi Engineering Conference, KFUPM, Vol. 1, pp. 65-75 (2002)
 9. “Practices of Safety Design of Saudi Residential Buildings”, **Al-Homoud, M., Abdou, A., and Khan, M.,** Proceedings of the 6th Saudi Engineering Conference, KFUPM, Vol. 1., pp. 155-168 (2002)

College of Computer Science & Engineering

Information & Computer Science Department

1. “Fuzzy Biasless Simulated Evolution for Multi-objective VLSI Placement”, **Junaid A. Khan, Sadiq M. Sait, Mahmood R. Minhas,** The Proceedings of IEEE Congress on Evolutionary Computation (CEC'2002), Honolulu, Hawaii, U.S.A., 2002, Volume: 2, pages: 1642-1647.
2. “A study on centers of chordal graphs” **Bharathi Rajan, Indra Rajasingh, Amutha and Paul D. Manuel,** The Proceedings of the 2002 International Arab Conference on Information Technology (ACIT 2002), Qatar, 2002, Vol 2, pp 635 – 642.
3. “Performance and Low Power Driven VLSI Standard Cell Placement using Tabu Search”, **Sadiq M. Sait, Mahmood R. Minhas, Junaid A. Khan,** The Proceedings of IEEE Congress on Evolutionary Computation (CEC'2002), Honolulu, Hawaii, U.S.A., 2002, Volume: 1, pages: 372-377.
4. “Development of a Multi-resolution Framework for NUBS”, **M. Sarfraz and M. A. Siddiqui,** (2002), The Proceedings of International Arab Conference on Information Technology (ACIT'2002), Qatar, 499-506.
5. “Fitting Curves to Planar Digital Data”, **M. Sarfraz,** (2002), The Proceedings of IEEE International Conference on Information Visualization-IV'2002-UK, IEEE Computer Society Press, USA, 744-748.
6. “An Algorithm for Arabic Font Design”, **M. Sarfraz,** (2002), The Proc. International Conference on Imaging Science, Systems, and Technology (CISST'2002), Las Vegas, Nevada, USA, CSREA Press, USA, 764-770.
7. “Visualization of Data with Spline Fitting: A Tool with a Genetic Approach”, **M. Sarfraz and A. Raza,** (2002), The Proc. International Conference on Imaging Science, Systems, and Technology (CISST'2002), Las Vegas, Nevada, USA, CSREA Press, USA, 764-770.

8. "Fuzzy based MultiObjective Multicast Routing using Tabu Search", **Muhammad Atif Tahir, Habib Youssef, A. Almulhem, and Sadiq M. Sait**, Proceedings of the International Conference on Internet Computing (IC 2002), Las Vegas, Nevada, USA. June 24-27 2002, Volume 2, pp 164-170.
9. "Multicast Tree Generation using Tabu Search", **Muhammad Atif Tahir, Habib Youssef, A. Almulhem, Sadiq M. Sait**, Proceedings of the Sixth Saudi Engineering Conference, KFUPM, Dhahran, Saudi Arabia, Dec 14-17 2002.
10. "Embedding of cycles into arbitrary trees", **Albert William, Indra Rajasingh, Jasintha Quadras and Paul D. Manuel**, The Proceedings of the 2002 International Arab Conference on Information Technology (ACIT 2002), Qatar, 2002, Vol 2, pp 984-991.
11. "QoS-Driven Multicast Tree Generation using Tabu Search", **Habib Youssef, A. Almulhem, Sadiq M. Sait, Muhammad Atif Tahir**, Proceedings of the 2001 International Symposium on Performance Evaluation of Computer and Telecommunication Systems (SPECTS 2001), Orlando, Florida. July 15-19 2001.
12. "Adaptive Decentralize Task Scheduling Strategy for Heterogeneous Distributed Raytracing System", **Kalim Qureshi and M.Bozyigit**, The Fouth Workshop on Information and Computer Science, WICS, KFUPM, Dhahran, Saudi Arabia (17-18 March, 2002), 421-428.

Computer Engineering Department

1. "Performance and Low Power Driven VLSI Standard Cell Placement using Tabu Search", **Sadiq M. Sait, Mahmood R. Minhas, and Junaid A. Khan**, IEEE Congress on Evolutionary Computation, Honolulu, Hawaii, USA, May 2002, pp 372-377.
2. "Use and Effect of Internet in Saudi Arabia" **Khalid M. Al-Tawil and Sadiq M. Sait**, The 6th World Multiconference on Systemics, Cybernetics and Informatics, Orlando, Florida, USA, July 2002.
3. "A Self Organizing Neural Network using Cascaded Adaptive Resonance Theory (CART)", **Abd-El-Barr, M. and Fadol, A.**, proceedings of the Parallel and Distributed Computer Systems (PDCS-2002) held Louisville, Kentucky, USA, September 19-21, 2002.
4. "E-Governance Where We Stand?" **Khalid M. Al-Tawil and Sadiq M. Sait**, Workshop on Fostering Digital Inclusion-The Role of ICT in Development/MDF-4, Jordan, Amman, October 2002.
5. "The use of Enumerative Techniques in Topological Optimization of Computer Networks Subject to Fault Tolerance and Reliability", **Abd-El-Barr, M. and Zakir**, Proceedings of the 14th IASTED International Conference on Parallel and Distributed Computing and Systems (PDCS-2002), held Cambridge, USA, November 4-6, 2002.

6. "Performance Analysis of a Hybrid Scheme for Tolerating Mobile Support Station Failures", **Abd-El-Barr, M., Khan, Salman, and Baig, Zubair**, proceedings International Conference on Wireless Networks, Las Vegas, USA, 2002.
7. "QoS-Based Synchronization of Multimedia Document Streams". **M. F. Khan, H. Ghafoor, and R. Paul**, proceedings of IEEE Fourth International Symposium on Multimedia Software Engineering (MSE'2002), Newport Beach, California, USA, December 11-13, 2002
8. "A Methodology for Network Topology Design Using Fuzzy Evolutions", **Salman A. Khan, Sadiq M. Sait**, In Proceedings of Sixth Saudi Engineering Conference, Dhahran, Saudi Arabia, 14-16 December 2002.
9. "Evolutionary Heuristics for Multiobjective VLSI Net list Bi-Partitioning" **Sadiq M. Sait, Aiman H. El-Maleh, and Raslan H. Al-Abaji**, In Proceedings of Sixth Saudi Engineering Conference, Dhahran, Saudi Arabia, 14-16 December 2002.
10. "Multicast Tree Generation Using Tabu Search", **Atif Tahir, H. Youssef, A. Almulhem and Sadiq M. Sait**, In Proceedings of Sixth Saudi Engineering Conference, Dhahran, Saudi Arabia, 14-16 December 2002.
11. "Reliability and Yield Enhancement of Array Processors (Part I): Hybrid Techniques", **Abd-El-Barr, M. and Sarif, Bambang**, proceedings of the International Arab Conference on Information Technology (ACIT-2002), held Doha, Qatar, December 16-19, 2002, pp. 232-238.
12. "Reliability and Yield Enhancement of Array Processors (Part II): Local and Global Techniques", **Abd-El-Barr, M. and Sarif, Bambang**, proceedings of the International Arab Conference on Information Technology (ACIT-2002), held Doha, Qatar, December 16-19, 2002, pp. 239-246.
13. "Characterization of a Campus Network Traffic," **Abdul Waheed**, accepted for publication in Pakistan Journal of Applied Sciences (PJAS), 2002.

Systems Engineering Department

1. "The Distribution-free Newsboy Problem: Extensions to the Shortage Penalty Case", **H. Alfares, HK, Elmorra, H**, 12th International Symposium on Inventories, August 19-24, 2002, Budapest, Hungary.
2. "A Mathematical Programming Model for Optimum Economic Planning of the Saudi Arabian Petrochemical Industry", **H. Alfares, HK, Al-Amer, AM, Saifuddin, S**, 6th Saudi Engineering Conference, December 14-17, 2002, KFUPM, Dhahran, Vol. 4, pp. 425-437.
3. "A Cyclic Selection Combinatorial Algorithm with Cyclic Scheduling Applications", **H. Alfares, S. Selim**, 6th Saudi Engineering Conference, Dhahran, Saudi Arabia, December 14-17, 2002, Vol. 4, pp. 513-520.

4. "Evaluating Traffic Stream Models for Nafrah Using Simulation", **M. E. Seliaman, S. O. Duffuaa, A. A. Andijani**, 6th Saudi Engineering Conference, Dhahran, Saudi Arabia, December 14-17, 2002.
5. "Introduction to Portal Servers", **N. Mohammad**, 19th International Computer Exhibition, Dhahran International Exhibition Center, Saudi Arabia, October 02, 2002.
6. "Performance Measures for Academic Departments", **Umar Al-Turki and S. O. Duffuaa**, 6th Saudi Engineering Conference, Dhahran, Saudi Arabia, December 14-17, 2002.
7. "Identification of Hammerstein Models to Minimize the H^∞ Norm of the Mismatch", **S. Al-Amer, F. M. Al-Sunni**, 4th Asian Control Conference, Singapore, Sept. 25-27, 2002, pp. 704-707.
8. "Integrated Analysis of Production-Inventory- Transportation Planning in Two Stage Supply Chains", **K. Ertogral, M. Darwish, M. Ben-Daya**, Proceedings of 6th Saudi Engineering Conference, Dhahran, Saudi Arabia, December 14-17, 2002, Volume 4, pp. 439-451.
9. "Order-up-to Inventory Control Policy Under Stochastic Replenishment Intervals", **K. Ertogral, M. A. Rahim**, Abstract proceedings of 12th International Symposium on Inventories, Budapest, Hungary, August 2002.
10. "Effect of Inspection Errors on the Performance of Inspection Plans in Quality Control Systems" **M. Khan, S.O. Duffuaa** , Proceedings of the 6th Saudi Engineering Conference, Dhahran, Saudi Arabia, December, 2002.
11. "Quality Function Deployment in Maintenance Work Planning Process", **S. O. Duffuaa, A. H. Al-Ghamdi and A. Al-Amer** , Proceedings of the 6th Saudi Engineering Conference, Dhahran, Saudi Arabia, December, 2002.

10. BOOKS PUBLISHED AND CONTRIBUTIONS

Mathematical Sciences Department

1. “Linear Programming”, edited, reviewed and published by King Saud University, **Al-Homidan, S., Hamed O. and Hemideh, H.**, (Adopted for the course MATH 465 “Linear Programming at the Department of Mathematics, King Saud University), 2002.
2. “Current Trends in Industrial and Applied Mathematics”, **P. Manchanda, K. Ahmad, A.H. Siddiqi**, Anamaya Publishers, New Delhi, (2002), ISBN 81-88342-00-9.
3. “Fast Wavelet Based Algorithms for Option Pricing in Nagib Callaos et. Al (eds.)”, **A.H. Siddiqi, P. Manchanda**, 6th World Math. Conference on Systematics, Cybernetics and Informatics, Vol. xiii, (2002), 141-146.
4. “On Some Recent Development concerning Sweeping Process in A.H. Siddiqi and M. Kocvara (eds.) Trends in Industrial and Applied Mathematics”, **A.H. Siddiqi, P. Manchanda, M. Brokate**, Kluwer Academic Publishers, Boston-Dordrecht, London, (2002), 339-354. ISBN 1-4020-0751-5.
5. “Role of Functional Analytic Methods in Imaging Science during the 21st century in Mathematics, Manchanda, Ahmad, K. Siddiqi, A.H.”, **P. Manchda and A.H. Siddiqi**, Current Trends in Industrial and Applied Mathematics, 1-28, Anamaya Publishers, New Delhi, (2002), ISBN 81-88342-00-9).
6. “Denoising and Analysis of Flight Measurements in P. Manchanda, K. Ahmad and A.H. Siddiqi (eds)”, **A. Tokgolu, A.H. Siddiqi and Z. Aslam**, Current Trends in Industrial and Applied Mathematics, Anamaya Publishers, New Delhi, (2002), 47-68.
7. “An Existence Results for Generalized Mixed Nonlinear Variational-like Inclusions in P. Manchanda, K. Ahmad and A.H. Siddiqi (eds.)”, **A.H. Siddiqi, Rais Ahmad and Salahuddin**, Current Trends in Industrial and Applied Mathematics, Anamaya Publishers, New Delhi, (2002), 202-208, ISBN 81-88342-00-9.
8. “An Iterative Algorithm for Generalized Mixed Nonlinear Variational-like Inclusions in P. Manchanda, K. Ahmad and A.H. Siddiqi”, **Q.H. Ansari, A.H. Siddiqi**, Current Trends in Industrial and Applied Mathematics, Anamaya Publishers, New Delhi, (2002), 209-216, ISBN 81-88342-00-9.
9. “Some Error Estimates for Wavelets Packet Expansion in P. Manchanda, K. Ahmad and A.H. Siddiqi”, **M.K. Ahmd and A.H. Siddiqi**, Current Trends in Industrial and Applied Mathematics, Anamaya Publishing, New Delhi, (2002), 217-222, ISBN 81-88342-00-9.

10. "A. Tokgozlu, Wavelet Based Computer Simulation of Some Meteorological Parameters in A.H. Siddiqi and M. Kocvara (eds.)", **A.H. Siddiqi, Z. Aslan, A. Tokgozlu**, Trends in Industrial and Applied Mathematics, Kluwer, Academic publishers, (2002), 95-116, Boston-Dordrecht-London. ISBN-4020-0751-5.
11. "A New Fast DCT Based Digital Watermarking Technique in A.H. Siddiqi and M. Kocvara (eds.)", **M.A. Suhail, A.H. Siddiqi, S. Ipson**, Trends in Industrial and Applied Mathematics, Kluwer Academic Publishers, 117-128, Boston-Dordrecht, London, (2002), ISBN 1-4020-0751-5.

Information & Computer Science Department

Proceeding Books:

1. "The Proceedings of the 2002 International Conference on Imaging Science, Systems, and Technology", Editors: **H. R. Arabnia and Youngsong Mun**, Associate Editors: **X. He, T. Hintz, B. Kovalerchuk, M. Sarfraz, J. Schwing, Q. Zhu**, Computer Science Research, Education, and Applications Tech. (CSREA) Press, USA, (2002), ISBN: 1-892512-93-9 (Vol-I).
2. "The Proceedings of the 2002 International Conference on Imaging Science, Systems, and Technology" Editors: **H. R. Arabnia and Youngsong Mun**, Associate Editors: **X. He, T. Hintz, B. Kovalerchuk, M. Sarfraz, J. Schwing, Q. Zhu**, Computer Science Research, Education, and Applications Tech. (CSREA) Press, USA, (2002), ISBN: 1-892512-94-7 (Vol-II).

Book Chapters:

1. **M. Sarfraz, and A. Raza**, (2002), Visualization of Data using Genetic Algorithm, Soft Computing and Industry: Recent Applications, Eds.: R. Roy, M. Koppen, S. Ovaska, T. Furuhashi, and F. Hoffmann, ISBN: 1-85233-539-4, Springer, 535 - 544.
2. **M. Sarfraz, and A. Raza**, (2002), Towards Automatic Recognition of Fonts using Genetic Approach, Recent Advances in Computers, Computing, and Communications, Eds: N. Mastorakis and V. Mladenov, ISBN: 960-8052-62-9, WSEAS Press, 290-295.
3. **Kalim Qureshi and Mashiko Hatanaka** (2001), An Empirical Study of Task Scheduling Strategies for Images Processing Application on Heterogeneous Distributed Computing System, Parallel and Distributed Computer Graphics, Eds., Marta Fahren and Xavier Pueyo, ISBN: # 1-59033-176-1, NOVA Press, USA..

Systems Engineering Department

1. "AN OPTIMIZATION MODEL FOR INVESTMENT IN ETHYLENE DERIVATIVES, IN I.C. PARMEE AND P. HAJELA (EDS.)", H. ALFARES, OPTIMIZATION IN INDUSTRY, SPRINGER-VERLAG, LONDON, 2002, PP. 255-266.

11. TECHNICAL REPORTS

College of Engineering

Electrical Engineering

1. “Script to Control the Printing of PS files based on the Number of Pages,” **Abul Bashar and Syed Tariq Maghrabi**, AIX Update, Xephone Inc., England, August 2002.
2. “Voltage Dip Problems in the Jubail Industry Area,” **I.O. Habiballah, A.M. Al-Shehri, and I.M. El-Amin**, RI-KFUPM, Draft Final Report, CER2218, October 2002.
3. “Wind Energy For Remote Villages,” **I.M. El-Amin, I.O. Habiballah**, RI-KFUPM, Proposal CER 2252, September, 2002.
4. “Environmental Effect On Polymer Insulators Properties,” **I.O. Habiballah and K. Al-Soufi**, RI-KFUPM, Proposal CER 2254, September, 2002.
5. “Power Quality Standards,” **I.O. Habiballah and M.A. Abdul Majeed**, RI-KFUPM, Proposal CER 2255, September 2002.
6. “Voltage Unbalance: Power Quality Issues, Related Standards and Mitigation Techniques: Effect of Unbalanced Voltage On End Use Equipment Performance,” **I.O. Habiballah and M.A. Abdul Majeed**, RI-KFUPM, Proposal CER 2256, September 2002.
7. “Exposure Surveys to Identify High-Exposure Scenarios,” **I.O. Habiballah and K. Al-Soufi**, RI-KFUPM, Proposal CER 2258, September 2002.
8. “Electric-And Magnetic-Field Guideline Evaluation and Magnetic Field Exposures For Live-Line Workers,” **I.O. Habiballah and K. Al-Soufi**, RI-KFUPM, Proposal CER 2260, September 2002.
9. “Electronics-I Online Course,” **M. Kassas**, ADC-KFUPM, Proposal, September 2002.
10. “Web-Based Power Quality Monitoring System,” **M. Kassas and I.O. Habiballah**, RI-KFUPM, Proposal, December, 2002.

College of Sciences

Chemistry Department

1. "Palladium-Heteropolyacids Catalyzed Hydrocarboxylation of Styrene Derivatives Catalytic Synthesis of Ibuprofen and Naproxen", **Bassam El Ali**, Final Report of KFUPM Research Project KFUPM/CY/Palladium/201.
2. "Role of Cooperative Learning & Other Educational Methods in Enhancing Chemical Education in Saudi Arabia", **Zaki S. Seddigi**, British Aerospace/British Council Scholarship.

Earth Sciences Department

1. "Origin and Economic Significance of Ironstone in Paleozoic Wajid Sandstone, Asir Region, Southwestern Saudi Arabia", **Hussain, M. and Hariri, M.M.** KACST Project No. LGP – 4-12. Final Revised Report, 76p; October 20, 2002.
2. "Suture Zones and Ophiolites of the Northern Arabian Shield", **Ahmed, Z. and Hariri, M.M.** KACST Project No. LGP 4-015, Final Revised Report, September 18, 2002.

Mathematical Sciences

1. "Computer Aided Learning of Mathematics: The Case of Prep-Year Math Program of KFUPM", **B. Yushau**, Technical Report # 281, (October 2002).
2. "Deconvolution and Regularization for Numerical Solutions of Incorrectly Posed Problems", **M. Iqbal**, Technical Report # 282, (October, 2002).
3. "Inequalities Involving Sample Means, Median and Extreme Observations.", **Laradji, A. and Joarder, A.H.**, Technical Report # 283, (2002).

Physics Department

1. "Carburization and Metal Dusting Failures of High Temperature Alloys", I.M. Allam, A.N. Shuaib, **N. Tabet** and A.A. Al-Farayedhi, KACST Project No. AT-17-33, Final Report, Dec. 2002.

LECTURES AND SEMINARS GIVEN BY UNIVERSITY FACULTY

Civil Engineering

1. Speaker : Dr. A. H. Al-Gadhib
 Topic : Hi-preformance Rheodynamic Concrete
 Date : 08.10.2002

2. Speaker : Dr. A. H. Al-Gadhib
 Topic : Chemo-Damage Modeling of Reinforced Concrete Structures
 Date : 15.10.2002

3. Speaker : Mr. Abid Maqsood Ahmad
 Topic : Development of an Equivalent Dispersion Coefficient for a
 Complex Contaminant Transport Model (MS Thesis
 Defense)
 Date : 12.11.2002

4. Speaker : Mr. Isam Abaker Mahmood
 Topic : Performance Modification of Asphalt by Using SABIC
 Polymers (MS Thesis Defense)
 Date : 24.12.2002

5. Speaker : Mr. Zeeshan Raza Abdy
 Topic : Causes of Female Teachers' Accidents in Kingdom of Saudi
 Arabia (MS Thesis Defense)
 Date : 07.01.2003

6. Speaker : Mr. Juned Laiq
 Topic : Risk and Hydraulic Reliability Analysis of Water
 Distribution System (MS Thesis Defense)
 Date : 07.01.2003

7. Speaker : Engr. Kalyandurg Iqbal Basha
 Topic : Study of Reaction Kinetics of a Submerged Membrane
 Activated Sludge Process (MS Thesis Defense)
 Date : 07.01.2003

Electrical Engineering Department

1. Speaker : A.H.M.A.Rahim
 Title : Robust Shunt Connected FACTS Devices for Power
 System Damping Improvement
 Date : September, 2002

2. Speaker : M. Deriche
 Title : Fundamentals of Multimedia Signal Processing
Keynote Address (Invited Tutorial), 1st MWDSP Workshop, Kuala Lumpur, Malaysia
 Date : August 3, 2002
3. Speaker : Musaddeq Ur Rahman
 Title : Nanocrystalline TiO₂ Photoelectrochemical Solar Cell
 Date : December 24, 2002

Mechanical Engineering Department

1. Speaker : Mr. Ulrich Klauck
 Topic : Bitzer Reciprocating and Screw Compressors and Their Advantages
 Date : Sept. 17, 2002
2. Speaker : Mr. M.S. Abdul Gaffar
 Topic : A Study of Dehumidification and Regeneration Processes of a Hybrid Liquid Cooling
 Date : Oct. 8, 2002
3. Speaker : Dr. M.A. Antar
 Topic : On Line Teaching of Thermodynamics
 Date : Oct. 15, 2002
4. Speaker : Mr. Hussain Al-Muslim
 Topic : Energy and Exergy Analyses of Crude Oil Distillation Plant
 Date : Oct. 21, 2002
5. Speaker : Mr. Amro Al-Sharif
 Topic : Measurement and Automation – Technical Seminar
 Date : Oct. 29, 2002
6. Speaker : Dr. Zuhair Gasem
 Topic : Investigating Small Stress Corrosion Cracks in Duplex Stainless Steel
 Date : November 5, 2002
7. Speaker : Mr. Mohammed Ahsan
 Topic : Corrosion Fatigue of Duplex Stainless Steel
 Date : November 19, 2002
8. Speaker : Dr. Anwar Khalil Sheikh
 Topic : ME Workshop
 Date : December 24, 02

9. Speaker : Dr. Khalid A. Al-Dheyman
 Topic : Laser Milling of Whisker-Reinforced Ceramic Composites
 Date : December 24, 02

Chemistry Department

1. Speaker : Dr. Jimmy Hwang
 Title : Stretched Exponentials in EPR Line Width Study of Nitroxide Spin Probes in Toluene
 Date : September 17, 2002
2. Speaker : Dr. A. Abulkibash
 Title : Differential Electrolytic Potentiometry, Applications and Latest Developments.
 Date : October 15, 2002
3. Speaker : Dr. M. A. Morsy
 Title : A Windows into Computational Chemistry
 Date : October 29, 2002
4. Speaker : Dr. Ian Forristal
 Title : SCI-Finder: A Powerful Tool for Multi-Disciplinary Research (Part II)
 Date : December 24, 2002

Earth Sciences Department

1. Speaker : Dr. Gabor Korvin
 Title : Inversion of bulk rock properties into pore shape spectra
 Date : March 11, 2002
2. Speaker : Dr. Mustafa Al-Hariri
 Title : Use of the GIS (Geographic Information System) in determining relationship between geology, structures and mineral prospects, Southern part of the Arabian Shield, Saudi Arabia
 Date : April 29, 2002
3. Speaker : Dr. Zulfiqar Ahmed
 Title : Introducing an Adekite from the Arabian Shield
 Date : May 13, 2002
4. Speaker : Dr. Gabor Korvin
 Title : Why Are Earth Materials Fractal?
 Date : Sept. 24, 2002 (Chemistry Dept.)

5. Speaker : Dr. Gabor Korvin
 Title : Radar Scattering from Soil
 Date : October 1, 2002

6. Speaker : Dr. Osman Abdullatif
 Title : Depositional Environment and Reservoir Heterogeneity of
 the Omdurman Formation (Albian-Cenomanian): Outcrop
 Analog to Rift Basins Sandstone Reservoirs, Sudan.
 Date : October 8, 2002

7. Speaker : Dr. Gabor Korvin
 Title : Two Missed Discoveries
 Date : November 10, 2002

8. Speaker : Dr. Mahbub Hussain
 Title : Source of Arab Oil, Saudi Arabia – Constraints of
 biomarkers
 Date : November 22, 2002 (University of Texas at Dallas)

9. Speaker : Dr. Gabor Korvin
 Title : Five problems in wave propagation
 Date : December 4, 2002 (UNAM, Mexico City, Math. Inst.)

10. Speaker : Dr. Zulfiqar Ahmed
 Title : Kaolin from Swat District, Pakistan
 Date : December 31, 2002

Mathematical Sciences Department

1. **Speaker** : Dr. Haydar Akca
 Title : On Existence of Solutions of Semilinear Impulsive Functional
 Differential Equations with Nonlocal Conditions.
 Date : Sunday, September 22, 2002

 2. **Speaker** : Dr. Salim Messaoudi
 Title : Decay and Gradient Estimate for Solutions of a Semilinear Heat
 Date : Equation
 Sunday, September 29, 2002

 3. **Speaker** : Dr. A. B. Thaheem
 Title : On Certain Operator Equations of Automorphisms of C^* -
 Date : algebras
 Sunday, October 06, 2002

 4. **Speaker** : Dr. Abdelkader Boucherif
 Title : Impulsive Differential Equations
 Date : Sunday, October 13, 2002

 5. **Speaker** : Professor Abul Hasan Siddiqi
 Title : On a Generalization of Sobolev Space
 Date : Sunday, October 20, 2002
-

6.	Speaker Title Date	: : : I. Rahimov & H. Muttalak Investigation of a Random Sum of Indicators with Applications in Branching Stochastic Process. Sunday, November 17, 2002
7.	Speaker Title Date	: : : Professor Asghar Qadir (Adjunct Prof. Math. Dept.) Gravitational Waves Sunday, December 15, 2002
8.	Speaker Title Date	: : : Dr. Hassan Azad The Mostow Fibration Sunday, December 22, 2002
9.	Speaker Title Date	: : : Professor Asghar Qadir Peristaltic Flow of a Magnetohydrodynamic Third-Grade Fluid in a Planar Channel Sunday, December 29, 2002.
10.	Speaker Title Date	: : : Dr. N. Tatar Fractional Derivatives and Applications Sunday, January 05, 2003
11	Speaker Title Date	: : : Dr. A.B. Thaheem Some Functional Equations on C^* -Algebras 3 rd Pure Mathematics Conference, Islamabad, Pakistan, 9-10 August 2002
12	Speaker Title Date	: : : Dr. Abdul Rahim Khan Noncommuting maps, Coincidence Points and Invariant Approximation Lahore University of Management Sciences (LUMS), Lahore, Pakistan, December 10, 2002
		<u>Math Education Seminars</u>
1.	Speaker Title Date	: : : Dr. K.M. Furati and A.B. Thaheem Math Education: Questions, Concerns and Prospects Tuesday, September 24, 2002
2.	Speaker Title Date	: : : Dr. Mohammad El-Gebeily Using Excell to Draw Graphs Tuesday, October 01, 2002
3.	Speaker Title Date	: : : Dr. Muhammad Ashfaq Bokhari MATH 202 [Elementary Differential Equations] A Course Aiming Expectations & Obligations Tuesday, October 08, 2002
4.	Speaker Title Date	: : : Mr. Omar Muammar (Lecturer – Education & Psychology Dept., Teacher's College, Dammam Do Geniuses Make History or Does History Make Geniuses? Tuesday, October 15, 2002
5.	Speaker Title Date	: : : Mr. George Raburu Assessment: It's Role in Math Education Tuesday, October 22, 2002

6.	Speaker	:	Dr. Salim Messaoudi
	Title	:	Limits Involving the Factorial
	Date	:	Tuesday, October 29, 2002
7.	Speaker	:	Professor Hasan Azad
	Title	:	Evaluating Volume Integrals
	Date	:	Tuesday, December 17, 2002
8.	Speaker	:	Mr. Balarabe Yushau
	Title	:	The New trend in Mathematics education
	Date	:	Tuesday, December 31, 2002
9.	Speaker	:	Mr. B. Demir
	Title	:	Undergraduate Math Education in the USA-Experience and
	Date	:	Observations
		:	Tuesday, January 14, 2003

Lectures/Seminars by outside speakers

1.	Speaker	:	Dr. Gabor Korvin (Earth Sciences Dept. KFUPM)
	Title	:	Two Missed Discoveries
	Date	:	Sunday, November 10, 2002

Physics Department

1.	Speaker	:	Dr. H.A. Mavromatis
	Topic	:	How to keep publishing after the PhD
	Date	:	22 September 2002
2.	Speaker	:	Dr. M. Faiz
	Topic	:	Synchrotron Radiation and Applications
	Date	:	6 October 2002
3.	Speaker	:	Dr. N. Maalej
	Topic	:	Medical diagnostic x-ray physics and technology
	Date	:	13 October 2002
4.	Speaker	:	Dr. Kh. A. Ziq
	Topic	:	Magnetic Polymers
	Date	:	20 October 2002
5.	Speaker	:	Dr. Al-Sunaidi
	Topic	:	Dissipative Particle Dynamics for Modeling Phase Ordering in Liquid Crystals
	Date	:	October 2002
6.	Speaker	:	Mr. A.F. Salem
	Topic	:	Superconducting properties of MgB ₂
	Date	:	10 November 2002
7.	Speaker	:	Dr. A. Al-Karmi
	Topic	:	Radioisotopes in Medicine
	Date	:	17 November 2002

8. Speaker : Dr. M. Nagadi
 Topic : KFUPM Program for Gifted Students
 Date : 22 December 2002

9. Speaker : Dr. Al-Jalal
 Topic : Thin film laser-based ultrasound sensors
 Date : 29 December 2002

10. Speaker : Dr Al-Kuhaili
 Topic : Surface Plasmons
 Date : 5 December 2002

Information & Computer Science Department

1. Title : On learning term rewriting systems from entailment
 Speaker : M.R.K. Krishna Rao
 Date : October 22nd, 2002

2. Title : Internet/Network Security
 Speaker : IT Matrix, Al-Khobar, Saudi Arabia
 Date : November 5th, 2002

3. Title : Managing Large Linux Clusters: issues, and solutions
 Speaker : Saeed H. Al-Zahrani
 Date : November 12th, 2002

4. Title : Offline Arabic Character Recognition Using Neural Network
 Speaker : Syed Nazim Nawaz
 Date : December 17th, 2002

5. Title : License Plate Recognition System
 Speaker : Mohammed Jameel Ahmed
 Date : December 31st, 2002

6. Title : Randomized Algorithm for Multiselection Problem
 Speaker : Syed Akhtar Ghazi
 Date : January 7th, 2003

Computer Engineering

1. Speaker: Mr. Muhammad Mahmoud, G.A.
 Date : March 19, 2002
 Title : Building Fast Modulo-Multipliers

2. Speaker: Mr. Othman S. Al-Saiari, G.A.
 Date : April 09, 2002
 Title : Design of Digital Circuits Using Evolutionary Algorithms

3. Speaker: Mr. Yahya E. Osais, G.A.
 Date : April 23, 2002
 Title : Static Test Set Compaction for Combinational Circuits Using Test Relaxation

4. Speaker : Mr. Bambang A. Sarif, R.A.
 Date : April 30, 2002
 Title : Evolutionary Design of Digital Circuit

5. Speaker: Dr. Abdul-Waheed M. Abdul-Sattar
 Date : October 1, 2002
 Title : "Analysis of KFUPM Web Traffic Using ITC Proxy Access Logs,"

13. SEMINARS GIVEN BY OUTSIDE SPEAKERS

Chemistry Department

1. Speaker : Dr. Gabor Korvin
Earth Sciences Department, KFUPM
Title : Why are Earth Material Fractal?
Date : September 24, 2002
2. Speaker : Mr. Michael Ratcliffe
National Wildlife Research Center,
Taif
Title : The Houbara are Back
Date : October 1, 2002
3. Speaker : Dr. Manfred Mirbach
RCC Ltd., Switzerland
Title : From Petrochemicals to LEGO Toys
Date : October 6, 2002
4. Speaker : Dr. Manfred Mirbach
RCC Ltd., Switzerland
Title : Agrochemicals: Do they help to feed
the world?
Date : October 8, 2002
5. Speaker : Dr. Manfred Mirbach
RCC Ltd., Switzerland
Title : Contract Research: The RCC
Example
(Given at the Research Institute)
Date : October 9, 2002
6. Speaker : Dr. Jamal A. Anabtawi
Saudi Aramco, R & D Center
Title : The Role of University Research in Catalyst Innovation
Date : November 5, 2002
7. Speaker : Dr. Daniel Bowles
Director of English Orientation
Program, KFUPM
Title : The Orientation English Program: Its
Place in the University
Date : December 31, 2002

Earth Sciences Department

1. Speaker : Prof. Fazal Mahomed (Univ of Witwatersrand, Johannesburg, South Africa)
 Title : A catalogue of symmetries
 Date : March 18, 2002
2. Speaker : Dr. Charles Kerans (AAPG Distinguished Lecturer, University of Texas, Austin)
 Title : Evolving technologies and opportunities in carbonates
 Date : March 27, 2002 (Jointly with RI Ctr. Petr. Mins.)
3. Speaker : Dr. Edward A. Clerke (Saudi Aramco)
 Title : Analysis and application of mercury capillary pressure data
 Date : May 5, 2002 (Jointly with RI Ctr. Petr. Mins. and Dept. Petroleum Eng.)
4. Speaker : Dr. Aldo L. Vesnavar (Saudi Aramco)
 Title : Slicing the Earth by seismic tomography
 Date : May 6, 2002
5. Speaker : Dr. Neil Hurley (Colorado School of Mines)
 Title : Subseismic-scale fault detection using borehole image logs
 Date : October 22, 2002 (Jointly with RI Ctr. Petr. Mins.)
6. Speaker : Mr. Omar Al-Humaidi
 Title : Whole Brain Teaching and Learning
 Date : October 29, 2002

Physics Department

1. Speaker : Dr. A. Naqvi
 Topic : Monte Carlo simulations for design of nuclear experiments
 Date : 29 September 2002
2. Speaker : Dr. Salim Messaoudi
 Topic : Thermoelasticity, Existence and Nonexistence
 Date : 3 November 2002
3. Speaker : Prof. Asghar Qadir
 Topic : Gravitational Waves
 Date : 15 December 2002
4. Speaker : Dr. E.E. Khawaja
 Topic : Thin solid films: some interesting results
 Date : 12 January 2003

Computer Engineering Department

1. Speaker: Mr. Tarek Ayass, Sales Manager (Middle East), Sun Microsystems
 Title : Sun Network Vision
 Date : March 26, 2002
2. Speaker: Mr. Philippe Trautman (EMEA Tech. Manager for Sun Education and Research Line of Business)
 Title : Sun Open Networking Environment (SunOne) in Education
 Date : March 26, 2002
3. Speaker: Dr. Mohamad Salmi Mohd Sohod, Guest Speaker
 Title : eLearning: The Malaysian experience
 Date : October 8, 2002
4. Speaker: Mr. Muhammad M. Abd-El-Barr, MS
 Baylor College of Medicine, Houston, TX, USA.
 Title : Biomedical Engineering: Strengthening the Bridges between Science, Medicine and Engineering.
 Date : December 29, 2002

Systems Engineering Department

1. Speaker : Mr. Adnan Al-Mansour
 Vice President, SCECO, Eastern Region
 Title : Implementation of TQM at SEC ERB
 Date : December 24, 2002
2. Speaker : Prof. Abdul Raouf, Adjunct Professor
 Title : Design for Quality: A Small and Medium Enterprise (SME) Perspective
 Date : December 31, 2002
3. Speaker : Prof. M. Abdul Rahim, Visiting Professor
 Title : Optimal Pricing and Ordering Policies for Perishable Inventory Items
 Date : October 15, 2002