RESEARCH

Quarterly Newsletter

October/November 2012

Office of the Vice President for Research

Strengthening the foundations of research at KU

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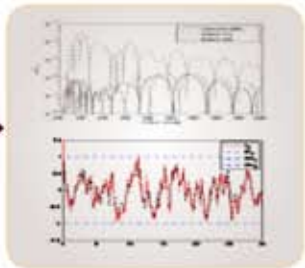


RS organizes Special Session on Research

RIG session familiarizes new Kuwaiti faculty members to prevailing scientific environment at KU, and opportunities for pursuing research through RS grant support system

Research Initiation Grants (RIG) Special Session in Progress...

In line with the Research Sector's annual tradition of familiarizing the new Kuwaiti faculty members to the prevailing scientific environment at Kuwait University, the Vice President for Research, Prof. Hasan Al-Sanad, hosted a special session on Research Initiation Grants (RIG), and gave an overview of faculty research, with opportunities for pursuing research through the RS Research Support System. The session held on Oct. 1, 2012, was typically confined to new Kuwaiti faculty members at the Asst. Professor's level, who were yet to complete two years in their position, and were on the threshold of their academic and research activity. Opening the session, Prof. Hasan welcomed the participants, and highlighted the purpose and extent of scientific research at KU under the grant awards umbrella, invariably leading to high quality accomplishments. He further said that "Research is a mission, that needs a positive attitude, for realizing the fundamental objectives of research, creating new knowledge and contributing to scientific advancement," and in this process RS provides the needed facilities for accomplishing the research goals. He further introduced the RS executive cadres, responsible for the grant support mechanism, overseeing the implementation procedures, the specifics of which were demonstrated electronically by the concerned Assts. Vice President for Research, Prof. Nejib Smaoui, Prof. Haitham Lababidi and Prof. Obaid Al-Otaibi.

> Session confined to new Kuwaiti faculty members at the Asst. Professor level

Prof. Nejib gave a visual outlook of the research support categories, funding levels, workflow for processing research grants, project duration, productivity, quality, impact, rewards, and incentives. He also demonstrated how the researcher could access journals' databases for ascertaining the ranking of journals in their respective fields, and make critical choices while publishing their research results.

Prof. Haitham outlined issues related to implementation of research projects, and research support Rules & Regulations, especially concerning research budget, purchase, equipment and laboratory supplies, petty cash, manpower and scientific missions. He also unveiled RS electronic resources, and introduced OVPR and RS websites in accessing latest information, the Portal facility for monitoring the progress and status of projects, including e-manual, online submission of projects, forms for various services, and transactions involved in research implementation.

Prof. Obaid, responsible for External Research Collaboration & Consultation, outlined the RIG grants, the eligibility and procedures for submitting proposals under this category. He also presented a broad overview of OERC mission, objectives and responsibilities, and highlighted the current status of collaborative research being pursued in coordination with several external

(Contd. P.3...)

Initiation Grants (RIG) on October 1, 2012

Participants get first-hand information on research policy, programs and procedures for initiating their research activity

institutions, totaling 33 projects, being conducted in association with KFAS (27), KPC (3) and one project each by AstraZeneca, UNEP and UNESCO. He also mentioned that a number of collaboration projects are under preparation, including projects with Shofu and 3M for Dental Research, and a project with IMEC on photovoltaics, with several potential external partners are being identified for possible collaboration.

These demonstrations provided an insight into the domain of RS support structure and facilities for availing grants, with RIG grants specifically earmarked for new Kuwaiti faculty members, facilitating their entry into KU research programs, as a start-off activity for moving towards more advanced and comprehensive research in *basic* and *applied sciences,* and in *arts* and *humanities.*

RIG Panel for Q & A round

The RIG session was attended by 69 new Kuwaiti faculty members, from across KU faculties, who acquired first-hand information on KU's research policy, and requirements for RIG grants, including the submission of RIG proposals on a special application form, available on OVPR/RS websites. The session evoked immense interest among the participants and gave way to an interactive *question-answer* phase, with the RS panel of Assts, Vice President addressing the queries raised.

Some of the key questions raised by the participants, and answered by the panel, are presented below:

RIG Questions/Answers

1. Q. Is it necessary to submit RIG application online or even a hardcopy could be submitted?
   A. Only online submission is required.

2. Q. What if the word-limit causes problem, and does not allow online submission?
   A. In such cases, additional pages can be attached with the electronic form.

3. Q. My research involves taking blood samples from human subjects. Is it allowed to take blood samples, and what is needed to be done?
   A. In such invasive research, involving human subjects, the approval of ethical committee is necessary, for which you may approach the Health Sciences Center/Faculty of Medicine.

4. Q. Is there any provision to make payment to respondents who participate in answering questions/questionnaire for my research project?
   A. You may submit details of your research, including questionnaire and participants, for RS to study your request.

5. Q. For publishing research is there any specific procedures to follow?
   A. If you are a recipient of Research Grant, it is mandatory to acknowledge KU Research Support along with the Grant No. It is a must to publish in international refereed journals with impact factor according to the ISI Web of Knowledge, You can identify those journals by following the ISI Web of Knowledge link provided at OVPR website. This will ensure the quality and credibility of your research.

6. Q. Why do I need to publish research papers extracted from my Ph.D. thesis?
   A. Research papers extracted from your thesis will not count towards your promotion but, it is good to have them in your resume.

7. Q. Can I apply for a research reward if the paper is extracted from my Ph.D. thesis?
   A. For research reward, it is necessary that Kuwait University affiliation appears in the paper.

(Contd. P.10...)

Results hold immense economic value for the oil industry, and in serving society

KU-KPC research collaboration yields breakthrough results towards achieving *'zero emission'* levels from PIC Ammonia storage tanks

The first fruits of KU-KPC research collaboration matured into breakthrough findings, with the successful completion of the PIC project, concerning *"Design of a dedicated flaring system for the ammonia storage tanks,"* yielding significant results towards achieving *"zero emission"* levels, a profound finding of immense significance for the oil industry. The project jointly pursued by expert teams from Kuwait University (KU) and Petrochemical Industries Company (PIC), under the umbrella of Kuwait Petroleum Corporation (KPC), was initiated on February 2, 2010, with the objective of finding scientific solution to recurrent and persistent problem of ammonia-release into the atmosphere from Ammonia storage tanks, that posed environmental hazard and public health risk in proximal areas.

The elimination of such risks was the key concern for PIC, to search for alternatives that could minimize ammonia emission, and provide long-lasting solution to the problem, an objective realizable through scientific coordination with KU, the basis for which was laid earlier with the formalization of KU-KPC agreement, on Nov. 2, 2009, opening the door for research collaboration between the two institutions, as legitimate grounds for joint ventures in areas of critical significance to the oil sector.

This agreement was the launch-pad for simultaneous initiation of three research projects, two with PIC, and one with KOC, all sponsored by KPC, and implemented by KU, of which the project concerning containment of ammonia release, has successfully culminated with exceptional findings, while the other two Projects are rapidly progressing to completion with expectations of equally significant findings, and practical solutions.

Kuwait University

مؤسسة البترول الكويتية
Kuwait Petroleum Corporation

Grounds laid for KU-KPC strategic partnership in resolving outstanding industrial concerns through empirical research

Project jointly pursued by KU-PIC experts

Petrochemical Industries Company

The KU-PIC project aimed at modeling a new flaring system for ammonia containment, that could effectively meet the operating conditions of the storage tanks. The project was as crucial, as it was scientifically challenging, as the tanks operated at near atmospheric pressure, with significantly low relief or recovery system in case of pressure drop. To avoid any accidental incidents that could cause large amounts of ammonia release, configuring a new relief system was a dire necessity for safe disposal and containment of ammonia released.

The challenge of the study was precisely to configure such a system, that apart from being functionally independent of current installation, would not interfere with normal ammonia storage operations and refrigeration system, yet effectively simulates ammonia containment. An exemplary effort thus started, with KU-PIC teams joining hands in designing the needed flaring system through coordinated scientific and technical expertise, and testing and demonstrating impeccable functionality of the newly devised model that effectively met the objective requirements of the project. The key findings of this project were overwhelming, and recently presented by Dr. Bader Al-Busairi, the project Principal Investigator, at the Fourth Meeting of the KPC-KU Steering Committee, held on April 3, 2012, at the KPC headquarter, and attended by the participating teams from KPC, KU and PIC. The meeting, specifically organized to monitor progress and follow-up *(Contd. P.21..)*

Next round of workshop scheduled for Nov. 6-7, 2012

RS organizes a workshop on "*Methods of Scientific Research Writing & Statistical Analysis (SPSS)*" for new faculty members & graduate students of Humanities Colleges on Oct. 15-16, 2012

Under the patronage of Kuwait University President, Prof. Abdullatif Al-Bader, and in the presence of Vice President for Research, Prof. Hasan Al-Sanad, and his assistants, Prof. Obaid Al-Otaibi, Asst. Vice President for External Research Collaboration & Consultation, and Prof. Nejib Smaoui, Asst. Vice President & Director, Research Analysis & Development, the Office of the Vice President for Research organized a two-day workshop, entitled, *"Methods of Scientific Research Writing and Statistical Analysis SPSS"* for new faculty members and graduate students of humanities colleges. The workshop, held on October 15-16, 2012, at the Seminar Room of Abdullah Al-Jaber Al-Sabah Hall, Shuwaikh campus, Kuwait University, was primarily intended to demonstrate the versatility and applications of the Statistical Package for Social Sciences (SPSS), and its implications in *data management, analytical tests* and *results* in scientific research. The purpose was to orient workshop participants to scientific writing and methods of research, leading to a scientifically sound research proposal or published paper of high quality, a standard that RS is vigorously promoting across all faculties, including in humanities research. The key speakers of the workshop were Prof. Ahmed Abdulkhalik, from the Dept. of Psychology, Faculty of Social Sciences, and Prof. Husny Hamdy, from the Dept. of Quantitative Methods & Information Systems, Faculty of Administrative Sciences, both seasoned professionals and experts in their respective fields, and whose presentations critically demonstrated the value and applications of SPSS in social sciences, as well as scientific methodologies essentially used in basic and empirical research. The workshop generated immense interest among the humanities colleges and attracted a total of 30 participants in the two sessions held on Oct. 15, and 16, respectively.

▲ *SPSS Workshop inaugural...*

Key speakers demonstrate applications and implications of SPSS and scientific Research methods

Inaugurating the workshop, Prof. Hasan Al-Sanad, underlined the significance of statistical analysis and scientific research methods as crucial for achieving high quality research. The holding of SPSS workshop essentially falls within the framework of the Research Sector's mission of enhancing KU research, and encouraging faculties to pursue original and innovative research, grants for which are provided under the umbrella of RS grant support system, with flexible procedures *(Contd. P.30...)*

▲ *A view of Workshop Participants and Presentations in Progress...*

Vice President assures RS continuous commitment to advancing KU research

OVPR announces two new recipients of US registered patents for novel discoveries

The Research Sector, in continuation of its policy of advancing scientific research at Kuwait University, is intensifying its efforts in facilitating researchers in pursuing high quality research that generates distinguished outputs. Given this thrust, as many as six US registered patents have already been achieved by researchers from the faculties of Engineering & Petroleum and Science, during the span of a single academic year 2010/11, with their names widely announced on RS website and OVPR Research Newsletter. It is precisely in this sphere, that RS enlists two latest entrants, having recently won the US registered patents during the year 2011/12, for their advanced and innovative research, yielding products of scientific inventions, further enhancing the patents recipients sphere. In expressing his pleasure and pride at such outstanding and internationally significant research outputs, Prof. Hassan Al-Sanad, Vice President for Research, announced the names of new patent recipients, commending their efforts in having achieved breakthrough findings in their respective fields, and achieving international recognition.

The latest patent recipients belong to the faculties of Science and Education, and include Dr. Magdy S. Montasser, from the faculty of Science, and Dr. Ali Ashour Al-Jafar from the faculty of Education. The significance of Dr. Magdy's research entitled, *"Biological control Agent for Plants,"* lies in discovering a new method for plant-protection against disease. The discovery concerns inoculating plants with a strain of cucumber mosaic virus (CMV), referred to as KU1 strain, which being a biological control agent, provides a protective shield to plants against disease. This discovery led to the grant of US registered Patent No.: US 8,138,390 B2 dated March 20, 2012 to Dr. Magdy, for the significance of his findings.

Patent Recipients


Dr. Ali Ashour Al-Jafar


Dr. Magdy S. Montasser

2 new Patents won by researchers from Science & Education faculties

The US registered patent won by Dr. Ali Ashour Al-Jafar, has been granted for discovering a novel timepiece that could also be programmed for facilitating multiplication. His research entitled, *"Timepiece with multiplication Table Display and Method of Teaching Multiplication Tables,"* is a multi-functional product whose liquid crystal display, apart from displaying time, also facilitates teaching methods of multiplication to users. Apart from the uniqueness of this discovery, Dr. Ali's research primarily concerns the use a timepiece that effectively allows multiplication, for which he won Patent No. US 8,238,200 B2, dated August 7, 2012. Significantly, this discovery is the first of its kind from the humanities faculties, and provides evidence of the humanities distinguished, and high quality research.

While commending the researchers for their outstanding work, Prof. Hasan also appreciated the significant role of the Research Sector and Patent Office, in facilitating faculties in getting their research inventions and discoveries registered. He also assured RS consistent efforts in supporting and promoting scientific research at Kuwait University, and anticipated faculties continuous efforts in pursuing *advanced, innovative* and *internationally credible* research.

Enlisted below are the names of new patent winners (2011/12)

1. Dr. Magdy S. Montasser

Dept. of Biological Sciences, Faculty of Science

Patent awarded for following invention *"Biological control Agent for Plants"* (Patent No.: US 8,138,390 B2 dated March 20, 2012)

2. Dr. Ali Ashour Al-Jafar

Dept. of Curriculum & Teaching Methods, Faculty of Education

Patent awarded for following invention *"Timepiece with multiplication Table Display and Method of Teaching Multiplication Tables"* (Patent No.: US 8,238,200 B2 dated August 7, 2012)

Time-tested methodology of grass-root approach adopted in identifying new priorities

RS begins implementing *15 newly identified areas of priority research* from Sept. 2012, and invites faculties to submit proposals in addressing priority concerns

RS anticipates faculties dynamic involvement in finding practical solutions to persistent local and regional concerns

Priorities define those key issues that are strategic to development, specify national and regional challenges, highlight social, economic and environmental concerns that continuously evolve over times and periods and require urgent and practical solutions through scientific research. It is precisely in this context that the Research Sector ventured into the mission of identifying the most significant current issues confronting science and society that hold significance in contemporary context, and necessitate research attention for effective answers. A broad-based search for specific issues, reflecting the current realities, was, therefore, undertaken early in January 2012, with the Research Sector inviting all faculties to be equal partners in suggesting areas that needed priority attention.

Constituting RS periodic activity to be alert and open to the demands of changing scientific scenario, and stimulating faculties to respond to emerging social concerns through empirical research, the Research Sector crucially relied on the time-tested methodology of grass-root approach by involving faculties in sharing their perceptions and views in identifying the most crucial priority areas, as an essential pre-requisite, on which to base the areas of current priorities, reflecting faculties collective input. In short-listing the priority areas, RS essentially considered faculty members tremendous effort and role in contributing their opinion and suggestions concerning the most dominant priority areas, that in their view deserved to be addressed through scientific research.

New priorities to remain valid from 2012 until 2014

Having initiated the search process

Priorities aimed at engaging faculties in pursuing advanced and innovative research in areas of strategic significance

in identifying priorities, RS adhered to the principle of each faculty's priorities suggestions critically

moving through the Departmental Research Committee (DRC), for assembling the most appropriate departmental-level priorities, and forwarding them to Faculty Research Committee (FRC) for finalizing faculty-level priorities, prior to reaching the RS. The Research Sector having received the suggested priorities from

▲ 15 Priority New Areas

all faculties, reviewed the faculties perspectives on priorities for eventual shortlisting and approval of the most dominant priority concerns through a Specialized Committee, resulting in the listing of 15 newly identified and approved areas of priority research.

The newly identified priorities were placed on the agenda of the Funding Committee Meeting, held on June 6, 2012, which were discussed and approved for adoption. The clearance of newly identified priorities marked the setting of a definitive direction in institutional research, with RS efforts aimed at channelizing faculties potential in addressing vital concerns within the framework of newly determined areas of priority research. The newly identified priority research areas (listed on page 21) were circulated to all faculties, and their implementation timed for the new academic year 2012/13, starting from September 1, 2012.

For all practical purposes, the newly identified areas provide a much wider scope for (Contd. P.21...)

New Guide to provide far wider choices to researchers to facilitate appropriate classification of their research projects

RS initiates the process of updating *Guide to Subject Areas* and invites faculties input for generating a comprehensive more advanced, new 2012/13 Edition

Faculties growing and diversified research interests necessitate inclusion of new and emerging areas of scientific significance

With the onset of the academic year 2012/13, the Research Sector initiated the process of updating the existing Guide to Subject Areas 2008, a vital document for the faculty scientific community for selecting appropriate area(s) identifying their exact areas of research, and its classification within broad scientific fields and disciplinary streams. The underlying objective being to accommodate faculties expanding interests, and growing diversion to probe complex and challenging issues at the interface of disciplines that often require merging of areas, or new subjects, not identified before. The need for generating new edition of the Guide virtually stems from this reality, to make allowance for accommodating faculties new scientific interests, with duly identified subjects, and appropriate codes assigned.

First Guide prepared in early eighties, six editions generated so far (1988, 1995, 2000, 2005, 2008) seventh edition timed for 2012/13 release

These areas would inadvertently merit attention in their logical placement within the existing classificatory framework of respective faculties and departments, leading to new more comprehensive and advanced edition of Subjects Areas, 2012/13, reflecting faculties growing interests in newer fields and areas of scientific significance. With the gross inflow of requisite information from faculties, RS is anticipating a much larger coverage of areas in the new guide, enriching the subjects data-source, and providing the legitimate basis for generating the new version.

For soliciting the subjects information, RS has already made the move by inviting faculties to submit their suggestions on new subject areas, as well as review existing areas listed under their respective faculty and departmental domains, for any modifications, inclusions or exclusions, as deemed necessary. The virtual substance for updating the guide would, therefore, flow-in directly from the faculties, for the inclusion of new areas within respective departments, with digital codes fixing their placement within the guide. The updated Guide would, therefore, offer the researchers a far wider coverage of major and micro research areas, not enlisted before, providing the latest outlook of faculties innovative and creative enterprise, reflecting emerging trends in institutional research. Periodic updating of the guide is, therefore, a continuous process in response to scientific developments at Kuwait University, with faculties new interests creating fresh grounds for inclusion of additional subjects not researched before. In retrospect, RS Guide to Subject Areas has already undergone six developmental phases, starting with the premier edition in early eighties, followed by the second edition in 1988, and subsequent updated versions in 1995, 2000, 2005, and 2008, respectively, each more advanced than the previous. Since then, this critical scientific repository of subject areas at RS has continued to grow, serving the faculty research community with a comprehensive and reliable subject areas reference resource, through periodic updates in response to emerging scientific needs and priorities. In this process, the currently under-preparation Guide 2012/13, marks the seventh crucial link in the Subject Guide's series, reflecting KU's rapid strides in the sphere of scientific research.

Guide to Subject Areas 2012/13

At this juncture, while the inflow of requisite information from faculties is awaited, the Research Sector is already in the process of incorporating new departments within the structural frame of the faculties, and developing new codes as (Contd. P.21...)

Korean delegation exhibits collaborative interests with Kuwait University in enhancing R & D

Office of Vice President for Research organizes a lecture on Advanced Material – Carbon, *Next generation product for oil producing countries*

Following its mission of developing inter-institutional alliances and partnerships across institutions and regions for enhancing scientific cooperation and joint research, the Office of the Vice President for Research, while hosting a visiting delegation from Korea, organized a Lecture on "Advanced Material – Carbon, the *Next Generation Product for Oil Producing Countries,"* on October 8, 2012, at Kuwait University premises, Conference Hall (119), Administration Building (Ground Floor), Khalidya Campus.

Organized under the auspices of Prof. Hasan Al-Sanad, Vice President for Research, and in the attendance of his assistants, Prof. Haitham Lababidi, Prof. Nejib Smaoui and Prof. Obaid Al-Otaibi, the widely attended lecture explored diverse dimensions of carbon versatility, its amazing tenacity, utility value and commercial propensity in leading industries and markets worldwide. The lecture's key speaker, Prof. Yang Duk Park, from the Department of Display & Material Engineering at Soon Chun Hyang University, and Chairman of CR. Tech Company Ltd., Korea, in an enlightening demonstration provided an insight into the sweeping world of Carbon, the next generation product, with propensity for becoming a promising resource equal to oil.

Underlining the significance of carbon as a strategic material for the 21st century, Prof. Park, highlighted its enduring characteristics, mechanical properties, thermal stability, conductivity and easy manufacturing, with the carbon products industry responding to trends and opportunities in the domestic and global economies. The presentation provided visual view of industrial applications of carbon products, that ranged from nuclear power, electronics, infrastructure, transportation, recreation and rubber products with rapidly growing worldwide market sales. What was significant was the raw material, which came from by-products of oil refinery, pitches, cokes, polymers, and industrial waste. He also showed some of the carbon products, very light, but very hard, and demonstrated their heat resistivity by subjecting fire-proof carbon product to high intensity flame, exhibiting its thermal properties.

▲ *Korean Delegation, and Advance Material--Carbon Presentation in Progress...*

Prof. Park provides an insight into the sweeping world of carbon, a strategic material for the 21st century

▲ *A view of Faculty Participants...*

Considering carbon composites to be the emerging future material for buildings and infrastructure, Prof. Park emphasized the insulation properties of carbon as particularly significant for the Middle East, and an attractive proposition for the future of core industries, in view of the abundance of raw material, which could be processed to finished products that are extremely strong, competitive, and cheap.

Winding up a very interesting and insightful presentation, Prof. Park, who headed the Korean delegation, expressed collaborative interests with Kuwait University in enhancing R & D through scientific cooperation and joint research in areas of mutual interest, as well as in the sphere of graduate studies between the two universities, as a precursor for taking the Technology and Development to the next generation. The session, attended by faculty members, researchers, and staff, culminated in shared thoughts and questions from the floor, and addressed by Prof. Park.

RIG SESSION 2012 -- Questions/Answers ...(*From.... P.3*)

8. Q. Once I submit a proposal to the Research Sector, why the Research Sector will send the proposal to the Department?

A. First, a research proposal is submitted to the Research Sector for assigning the project code, and making sure that the application is complete in all aspects, with essential elements of the proposal *(such as, background, introduction, methodology, importance)* in line with the RS format. Then, starts the Processing stage, for which the Project is forwarded to the Departmental Research Committee (DRC). Also if the budget is more than KD. 4000/-, the project is sent to the Departmental Coordinator through the Vice Dean for Research and the Chairman to be discussed at the department level to make appropriate recommendation. The Departmental Committee, after proofreading the proposal, and ensuring that the budget requested is in proportion with the objective of the proposal, makes its recommendation to the VDR. The Departmental Research Coordinator may request the PI to modify the budget, again in accordance to the stated objective. The responsibilities of the DRC are as follows:

- Setting research goals of the department
- Following up the research activities at the department, and ensuring that there is optimum utilization of available resources and equipment to implement research projects.
- Assisting researchers in the preparation, submission and review of their research proposals, in conformity with RS rules and procedures, and in line with the requirements of the refereeing process.
- Maintaining a record of available research expertise in the department to serve varied needs of research projects submitted for funding support. This also includes providing requested information to the Vice Dean for Research to facilitate the refereeing process, and to ensure continuous updating of the *Guide to Subject Areas.*
- Encouraging departmental researchers to participate in scientific forums, apply for researchers awards and publish in leading refereed international journals.

9. Q. I have received a number of calls requesting information on a tender to purchase specific equipment!

A. It is extremely important that all communication is made through the Research sector. This includes all financial, purchasing and administrative affairs/transactions. Working closely with RS is highly recommended and results in shortening the procedures.

10. Q. Who should we contact in case of questions and queries?

A. Contact information is available on the Website. Youy may also contact the Hotline No. 2498 5208

11. Q. What should we do in case of difficulties in accessing or using the online proposal submission system?

A. Contact RS for technical help and assistance.

12. Q. As a new researcher, we need to have basic services, which are not provided by the faculty, such as printers, databases and survey facilities!

A. Your faculty is encouraged to submit a General Facility project which would provide the infrastructure commonly needed by researchers and your faculty.

Collaborative research yields vast knowledge on *climatic trends* for developing a science-base *climate action plan* for the State of Kuwait

KU-UNEP *national initiative* on climate change, aimed at assessing its impact on *climate, water resources and coastal zone,* successfully culminates with the submission of project's final report in October 2012

The critical dimensions of climate change, its impacts and combat strategy for the State of Kuwait was the core of a national seminar organized by the Research Sector (RS) earlier on May 6, 2012, at Kuwait University, significantly reflected on the progress of a collaborative project pursued under the joint KU-UNEP Memorandum of Understanding (MOU) for research cooperation. Marking a *national initiative* on climate change, the project, falling within the framework of *United Nations Convention on Climate Change* (UNFCCC), provided the scope and substance for international cooperation in combating climate change, with Kuwait University tasked to assess the impacts of climate change on *climate, water resources and coastal zone.*

Essentially, the project involved the assessment of historic climate (weather) records dating back to 70 years, and projecting future climatic scenarios up to the year 2100 for Kuwait by applying sophisticated global and regional climate models. This data treasure generated in the process is intended to provide a solid foundation for impact assessment studies on water resources and coastal zones using state-of-the-art modeling techniques. The project, in line with KU's research priority strategy for sustainable development, was primarily aimed at identifying sources of greenhouse gas emissions, how these emissions could be curtailed in different sectors as well as how climate change will impact water sources and coastal development. The project (XX01/12), conducted in collaboration with UNEP, and the Kuwait Environment Public Authority (EPA), has just been concluded with the submission of the project final report in October 2012. The report provided an analytical and exhaustive outlook on some of the key environmental concerns having implications for climatic variations in the State of Kuwait. It highlighted the national development context and economic sectors sensitive to climate change, assessed historical and future climate trends, impacts on water resources and coastal areas. The project knits together critical information on technology assessment and public awareness, generating vast knowledge on climatic changes of potential significance for developing a science-based *climate action plan* for the State of Kuwait. The report is also a significant pointer to technology needs for mitigating and adapting to climate change, and recommends strategies and actions towards promoting *technology transfer,* the implementation modalities and regulatory framework.

Project's findings, strategies and recommendations being reviewed and recasted in standard UN format for their eventual adoption and declaration

Climate Change Seminar in progress...

Doha Climate Change Conference an ideal platform for KU to share its *climate change experiences* at the UNFCCC's 18th session in Nov. 2012

Some Dignitories and Participants at Seminar...

The project's completion was marked with the *National Validation Workshop* on Kuwait National Communication to UNFCCC, held on Oct. 1, 2012 at Costa De Sol Hotel. Knowledge and results generated from the project were presented in the workshop by experts from the University as well as other participating institutions. There were about 50 participants in the workshop representing broad range of national stakeholders including ministries, civil society and private sector. The presentations focused on the project's objectives, results, achievements and way forward. The workshop endorsed the conclusion of the project and put forward a number of recommendations to further expand research studies on impacts on water resources, coastal zone, public health, dust storms and socio-economic aspects. All these recommendations will be taken into consideration when starting the second round of national communication, scheduled to be launched early next year.

While, the project's findings, strategies and recommendations, are subject to recasting into the standard UN format, prior to official declaration of the successful national environmental initiative, advanced preparations are already underway for the 18th session of the (Contd. P.30...)

Prevention of scholarly misuse main aim..!

RS to verify authenticity of proposals through routine tracking for safeguarding researchers intellectual property

While the Research Sector (RS) is encouraging faculties to pursue *original, innovative* and *high quality* research, it is equally concerned about safeguarding the researchers intellectual property, whether published under the domain of research productivity, or an intended research, submitted as project proposals for grant support. Since, originality of research is the matter of utmost concern, RS efforts are aimed at how best the scientific content is potentially verifiable, given the means available, to protect the scientific integrity of research.

This concern is the reason for RS to gear up for *originality checks* by deploying measures that would shield the researchers scientific efforts, through reliable means, used worldwide for authenticating research. The purpose being to bring the researchers scientific efforts under the protective cover, in recognition and appreciation of their serious intent and efforts in pursuing advanced and empirical research.

In the prevailing scientific culture at KU, an increasing volume of high quality research proposals that RS receives throughout the year for grant support, authentication of faculty research becomes a compulsive need for prevention of scholarly misuse. Ensuring the scientific content and originality of the intended research, therefore, assumes utmost significance for qualifying a potentially significant proposal for grant support, and identifying and excluding proposals of doubtful originality. Hence, in all fairness and appreciation of the researchers efforts, protecting their rights is an issue that is claiming RS attention, and necessitating deployment of available technology, *ithenticate*, to *clear, protect, verify, detect* and *prevent* scientific and scholarly misuse in faculty research.

> Deploying technology for ascertaining the *originality* and *integrity* of proposed research

The verification process entails a routine technological exercise that compares proposed research against a vast database of published work for originality checks worldwide, enabling identification of doubtful submissions. For researchers information, *ithenticate* technology is widely used in research and scholarly studies, as a dependable tool for prevention of research misuse, and which the Research Sector would be applying in authenticating the scientific originality of the proposals received, prior to starting the processing procedure. This *pre-processing proposal authentication* phase would safeguard researchers intellectual property, and ascertain the originality of scientific research, enabling RS to expedite processing of submitted proposals for grant support.

RS has already alerted the researchers on the proposal verification process through the OVPR/RS websites, and an advisory has been inserted in the online Research Support Application, duly informing researchers that their proposal would henceforth be subjected to routine tracking system *(ithenticate)*, prior to project processing.

In doubtful cases, the proposal would revert back to the concerned PI for appropriate *reformations,* and *resubmission.* There being no denial of support, but rather *revision* and *rerouting* of application for grant *reconsideration.* Hence, with this pre-processing procedure, RS is significantly moving towards ensuring and achieving *authenticity, originality* and *integrity* in faculty research, while protecting researchers against any scientific misuse.

Workshop highlights changing scientific landscape and challenges in research management

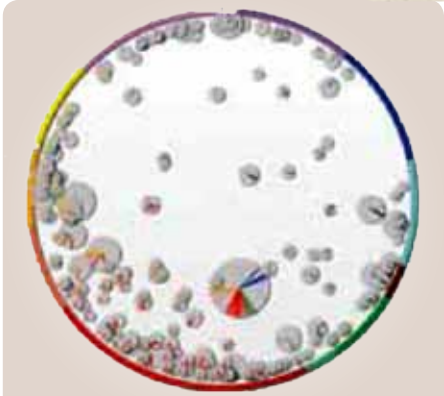
RS turns spotlight on multidisciplinary research performance worldwide through Elsevier's *Scopus* & *Spotlight* workshop

Considering the burgeoning horizons of published research, vast databases facilitating the search process, innumerable journals publishing wide-ranging research papers in diverse scientific streams, and challenges faced by the scientific community to wade through voluminous information in search of material specific to their scientific needs, were some of the key matters that transpired the Research Sector (RS) to organize the Scopus & Spotlight Workshop on October 3, 2012, at the Conference Room of the General Secretariat, Kuwait University. The workshop, hosted by the Vice President for Research, Prof. Hasan Al-Sanad, was presided by Assts. Vice President, Prof. Haitham Lababidi, Prof. Nejib Smaoui and Prof. Obaid Al-Otaibi. Also, present was Dr. Promila Sharma, Director, Technical Information & Publications, OVPR. The workshop, organized within the framework of RS efforts in keeping the scientific community informed and updated on the benefits of latest technology, was primarily aimed at facilitating the researchers in accessing critical scientific information specific to their respective fields of study.

Given this purpose, RS brought to KU scientific community a visual view of Elsevier's largest abstracts and citations database of peer-reviewed literature, with smart tools to track, analyze and visualize research, precisely what the Scopus and Spotlight technology facilitates. The workshop, conducted by Ms. Gamze Keskin, Customer Development Manager, Elsevier, demonstrated the versatility of Scopus in finding the information needed by the scientists and experts, enabling quick and comprehensive literature search through 47 million records, 18,000 titles and 5,000 publishers worldwide.

New technology raises immense possibilities of data-search for exciting global scientific scenarios

Scopus workshop in progress...



KU Research Strengths

The presentation also exhibited the immense potential of Elsevier's SciVal Spotlight technology, carrying the search process to the next advanced stage, and profiling institutions R & D activity vis-à-vis the competitive world of sciences and scientific development. Also, spotlighted was the institutions and authors performance within disciplines, clusters, institutions, and regions, reflecting diverse global scientific scenarios, as well as enabling institutions to benchmark their respective scientific strengths, and trends in interdisciplinary research, exhibiting areas where new strengths and collaborative possibilities existed.

A View of Participants...

Essentially relying on Scopus database, SciVal Spotlight facilitated a graphical view of any institution's research performance across top competing organizations, identifying potential areas of scientific enhancement and development, as well as how institutions can build on their respective strengths, and elevate their scientific standing.

The workshop evoked significant interest among the scientific community, leading to an interesting round of questions/answers, and opening prospects for a wider more representative and advanced interactive session later. The workshop participants were specially invited from KU faculties to have first-hand view of the versatility of the Scopus database, in facilitating the literature search process. For researchers information, access to Scopus database is available for KU (www.scopus.com), opening the database search engine through specific keywords, facilitating search by country, institutions, authors, journals, impact factor, performance and competencies.

Research Reward Recipients

With this RESEARCH Quarterly issue, the Distinguished Research Series, progresses into its third phase, bringing the next group of distinguished researchers to the readers' attention, for having bagged the Research Rewards for their internationally acclaimed outputs, generated from funded and unfunded research, as well as for excellence in project final report. In launching the research reward stimulus package two years ago, the Research Sector consciously ventured into a mission of driving faculties towards the culture of quality in faculty research, with research reward being the key motivating factor in this ambitious journey. In this venture, faculties tremendous response has been overwhelming, with as many as 143 recipients having won the reward, for their published research appearing in international top ranking journals of significant impact, and the claimants list is rapidly growing. For RS, this signals a reassuring trend, which must settle down to an accepted norm in faculty research, for diverting world interest and attention on the quality of research at Kuwait University.

For this ambitious goal, it is essential that the reward winning accomplishments of the faculty scientific community be dispersed extensively, to gain wider visibility, and, in turn, mobilize the international community's attention on the scientific value and quality of research at KU. The Distinguished Research Series, is meant to attain this purpose, with Series- 3 presenting summarized research results of the next four beneficiaries of research reward incentives, which include two recipients for wining distinguished reward based on *funded* research, one for *unfunded* research, and one for *excellence in project final report.* The summary report has been directly provided by the reward recipients, relaying their research results, for scientific and public awareness. In Series – 3, the scientific highlights are on the research accomplishments of Prof. Walid Chakroun (Funded Project RE01/08) from the Dept. of Mechanical Engineering, Faculty of Engineering & Petroleum; Dr. Mohammed Hadi (Funded Project EE02/08), Dept. of Electrical Engineering, Faculty of Engineering & Petroleum; Prof. Mohamed Fahim Hassan (Unfunded research), Dept. of Electrical Engineering, Faculty of Engineering & Petroleum; and Prof. Abu Salim Mustafa (Project Final Report - MI06/08), Dept. of Microbiology, Faculty of Medicine. In presenting these summaries, the inclusion basis remains *first-come, first-served. (Kindly Note: The summaries, findings and views expressed herein are entirely those of the researchers).*

Indoor Air Quality and Energy Conservation in Combined Chilled Cooling and Displacement Ventilation for Kuwait Climate

Prof. Walid Chakroun

Dept. of Mechanical Engineering, Faculty of Engineering & Petroleum

(Project No.RE01/08)

Major findings of the research project:

A. Air Quality in Mixed CC/DV Rooms

A transient coupled thermal and contaminant transport model has been developed to assess the indoor air quality based on predicted levels of carbon dioxide concentrations in the radiant-cooled space under varying load conditions. The model was validated by conducting experiments in a facility in Kuwait at mixing ratios of recirculated air of 0%, 20%, and 40%.

The developed model incorporated the effect of external load on associated wall plumes. The experimental results agreed well with the transport model predictions in terms of concentration. The energy consumption of the combined chilled ceiling and displacement ventilation is found to be substantially less when mixing is present. A mixing fraction of 60% resulted in 37% less measured energy consumption of the system when compared with 100% fresh air CC/DV system energy consumption.

The performance of the CC/DV system has been applied to a test office space in Kuwait and the energy consumption of the system is evaluated (Contd. P.16...)

Near-Field PML Optimization for Low and High Order FDTD Algorithms Using Closed-Form Predictive Equations

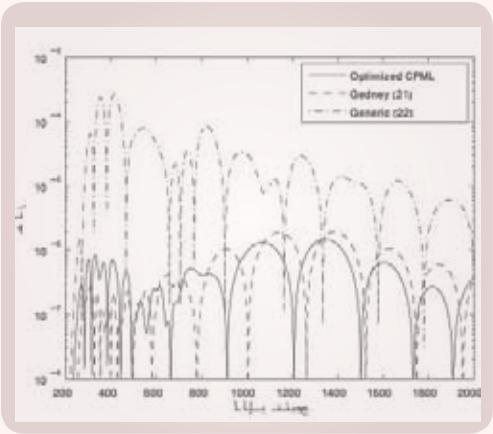
Dr. Mohammed F. Hadi

Dept, of Electrical Engineering, Faculty of Engineering & Petroleum

(Project No.EE02/08)

The finite-difference time-domain (FDTD) method is a well-established numerical technique to study electromagnetic phenomena and applications. It is based on re-casting Maxwell's differential equations, which are the governing equations of electromagnetic waves behavior, from their differential form into a set of difference equations that are suitable for computer analysis. In using the FDTD method to model electromagnetic waves interaction with any structure (be it a piece of equipment, an antenna, or human tissue), the engineer relies on many auxiliary tools to complete his or her task. One of the more critical tools concerns the need to truncate the outer extremities of the digital model to simulate a continuously extending space around the object being modeled. For example, only an antenna and its immediate surroundings need to be modeled in order to be analyzed properly, provided the model is designed to prevent any back reflections of outgoing waves from the model's boundaries to simulate continuously outgoing waves. This tool is referred to as Absorbing Boundary Conditions (ABC). In practice, any structure that is not wholly contained by a perfect metallic barrier requires some form of ABC to simulate it efficiently.

Although FDTD was first introduced by Kane Yee in 1966, an efficient ABC tool wasn't introduced until 1994. That year, J.-P. Berenger published his now seminal paper on perfectly-matched layers (PML) which provided a very ingenious and efficient approach to the ABC problem. This paper was immediately recognized for its originality and its importance not only by the FDTD community, but by other scientists and engineers working in computational electromagnetics and beyond. In its contemporary form, the convolutional PML (CPML), this ABC technique is now capable of simulating wave absorption for many varieties of wave properties; including traveling waves, evanescent waves, steeply incident waves,



…etc. Unfortunately, proper use of the CPML technique requires a lot of experience on the part of the modeling engineer in both PML theory and the specific structure being modeled.

The fact is the CPML technique requires the engineer to set 6 different parameters before it could be used, and these parameters are very much problem-specific. Usually, these 6 parameters are set based on trial and error or adopted from previously published successful sets for same-class problems. When such convenient choices are not available, then more drastic alternatives are pursued to find proper CPML values. An exhaustive search was suggested by Roden and Gedney in 2000 where the structure of interest was modeled repeatedly using ranges of CPML parameters and figures of merit from the various simulations are compared with a known reference to judge on the best combination of CPML parameters. Needless to say such approach is time consuming and at times (if the structure being modeled is large enough) can prove prohibitive. The present author published in 2009 a paper that introduced parametric optimization as a means to limit the number of trial simulations. This introduction afforded sizable reduction in the requisite number of FDTD simulations during the process of arriving at the optimum CPML parameters. Still, the fact remains that whole FDTD simulations are required and for hundreds of times just to decide on the proper set of CPML parameters which are still extremely time consuming.

In this paper, the author developed an optimization technique to calculate CPML parameters extremely efficiently by doing away with FDTD simulations altogether. This was achieved by replacing the actual full FDTD simulation as the optimization objective function with a precise predictor of numerical reflections off the CPML layers. Most critically, this predictor is valid even for structures that are tightly bound by the surrounding CPML region. Computing this predictor requires solving a simple system of equations with a very small order which is twice the number of layers comprising the CPML. This contribution reduced the time needed to compute optimum CPML parameters from hours and days to a handful of seconds. Indeed, in a typical case, a speedup of approximately 18,000: 1 was achieved compared to the best approach previously available.

While this achievement by itself is of paramount importance to FDTD practitioners, it is of even more value to high-order (Contd. P.17...)

Distinguished Research Series – 3

State Estimation of Constrained Nonlinear Discrete -Time Dynamical Systems

Dr. Mohamed Fahim Hassan, Dr. M. Zribi & Dr. M. Tawfik
Dept, of Electrical Engineering, Faculty of Engineering & Petroleum

(Unfunded Research)

Most of real-life systems are stochastic, nonlinear and subject to a set of equality and/or inequality constraints due to physical and/or practical considerations. Systems identification and/or control, necessitates the estimation of the system states from the available output measurements. Although Kalma filter (KF) and extended Kalman filter (EKF) are the most extensively used techniques for state estimation, they do not incorporate these constraints, and hence they lead to sub-optimal estimators.

In this paper, we address the state estimation problem of constrained nonlinear stochastic discrete-time dynamical systems. In this respect, we propose a simple and recursive technique, based on the active set method and the multiple projection approach, to handle this problem. In this approach, at each sampling point, if the estimator resulting from EKF satisfies the constraints, we proceed to the next sampling point. Otherwise, the subset of violated constraints is used to formulate a set of equality constraints which will be treated as an additional received set of noise free measurements at the same sampling instant. Using a decomposition procedure and the multiple projection approach the estimator is updated to satisfy the imposed systems constraints. Illustrative examples are used to show the effectiveness and applicability of this approach.

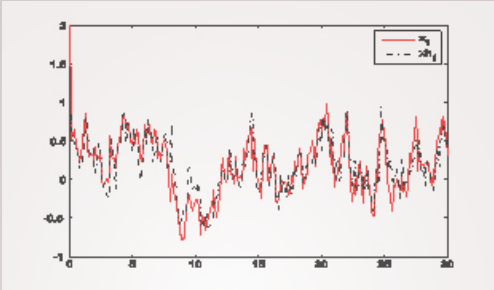


Fig.1 The first state (continuous line) and its estimate (dashed line)

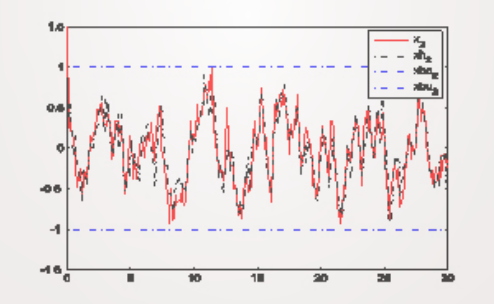


Fig.2 The second state (continuous line), its estimate (dashed line) and the imposed bound (dotted lines)

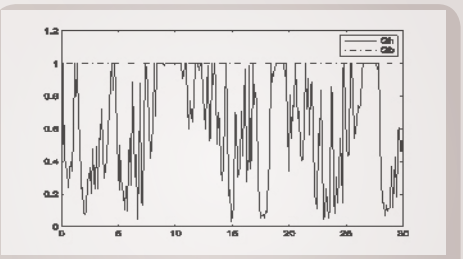


Fig.3 The imposed nonlinear constrained (continuous line) and its upper bound (dotted line)

Indoor Air Quality and Energy Conservation ...(From.... P.14)

over the cooling season from May till October and results are compared with the conventional system energy consumption at the same indoor air quality level. The energy consumption of mixed air system was less by 15-20 % from the conventional system.

B. Use of Personalized Coolers to Reduce CC/DV Systems Energy Consumption

The impact of utilizing a personalized evaporativea cooler as aiding device to cool the occupant face and trunk on energy consumption of the chilled ceiling displacement ventilation CC/DV system. A simulation model is developed for integrating the personalized cooler with the ascending thermal plume. The thermal model of the conditioned room air around the person is integrated with a segmental bioheat and thermal comfort model to predict the human thermal comfort.

The model is validated with experimental data on the vertical temperature distribution in the room, and the recorded overall comfort perceived by surveyed subjects. Experimental results agreed well with predicted values of temperature and comfort level. When using personalized cooling, the DV supply air temperature can be as high as 24°C while the PEC at flow rates of 3-10 *l*/s achieved similar comfort with a DV system at supply temperature of 21 °C. At equal thermal comfort level, the integrated CC/DV system, PEC model resulted in up to 17.5% energy savings compared to the CC/DV system without a PEC. When mixed air is used in the CC/DV system additional 25% savings in energy is realized when compared with energy used for (Contd. P.25...)

Bioinformatics analysis for identification of promiscuous Th1-cell antigens and peptides encoded by mycobacterium tuberculosis region of difference 1 open reading frames

Prof. Abu Salim Mustafa

Department of Microbiology, Faculty of Medicine

(Final Report of Project No. MI06/08)

Tuberculosis is a major health problem of world-wide concern both in the developing as well as in industrialized countries. About one third of the world population is infected with *Mycobacterium tuberculosis* with 8 to 10 million people developing active TB and 2 million people dying of it each year. Tuberculosis ranks among the top 10 causes of human mortality and it has been declared "a global emergency" by the World Health Organization. In addition to being an international problem, tuberculosis is also a serious infectious disease problem in the Gulf Countries, including Kuwait with about 700 cases reported annually. To control the word-wide epidemic of tuberculosis, universally efficacious anti-TB vaccines and reagents for specific diagnosis are urgently needed. The aim of this project was to identify antigens of *M. tuberculosis* useful for vaccine and diagnostic applications using a computer-based bioinformatics program.

The comparative analyses of *M. tuberculosis* genome with the genomes of other mycobacteria have led to the identification of several genomic regions of difference (RD) between *M. tuberculosis* and the currently used vaccine against tuberculosis, i.e., *M. bovis* BCG. Among these regions, RD1 is the most important region that encodes several immunogenic proteins of *M. tuberculosis* and thus could be useful in the diagnosis and developing new vaccines against TB. However, an important requirement for such diagnostic and vaccine candidates is their presentation to immune cells that provide protection against tuberculosis in HLA-non-restricted fashion. In the Project MI06/08, the identification of such antigens and peptides of RD1 was attempted by using bioinformatics to analyze the binding of antigens and peptides to 51 HLA–DR molecules.

Table. HLA-DR binding prediction by ProPred analysis for the complete protein sequence of RD101 (Rv8371) to RD109 (Rv3879).

Sequence	ProPred analysis for HLA-DR binding to									
	DRB1.1	DRB1.3	DRB1.4	DRB1.7	DRB1.8	DRB1.11	DRB1.13	DRB1.15	DRB5.1	All Alleles
	No. of alleles predicted to bind / no. of alleles included in ProPred									
RD101 (Rv3871)	2/2	7/7	9/9	2/2	6/6	9/9	11/11	3/3	2/2	51/51(100%)
RD102 (Rv3872)	2/2	6/7	9/9	0/2	3/6	9/9	10/11	2/3	2/2	43/51(84%)
RD103 (Rv3873)	2/2	6/7	9/9	2/2	6/6	9/9	11/11	3/3	2/2	50/51(98%)
RD104 (Rv3874)	2/2	7/7	9/9	0/2	5/6	9/9	10/11	0/3	2/2	44/51(86%)
RD105 (Rv3875)	1/2	7/7	9/9	2/2	3/6	9/9	11/11	1/3	0/2	43/51(84%)
RD106 (Rv3976)	2/2	7/7	9/9	2/2	6/6	9/9	11/11	3/3	2/2	51/51(100%)
RD107 (Rv3877)	2/2	7/7	9/9	2/2	6/6	9/9	11/11	3/3	2/2	51/51(100%)
RD108 (Rv3978)	2/2	7/7	9/9	2/2	5/6	9/9	11/11	2/3	2/2	49/51(100%)
RD109 (Rv3879c)	2/2	7/7	9/9	2/2	6/6	9/9	11/11	3/3	2/2	51/51(100%)

The bioinformatics data were compared with experimental results of presentation of RD1 proteins and peptides to immune cells from HLA-DR typed healthy subjects and pulmonary tuberculosis patients. The results suggested that all of the RD1-encoded proteins were promiscuous HLA-DR binders. Furthermore, each of these proteins had peptides/epitope regions that qualified to be HLA-promiscuous. In addition, testing of PBMCs from HLA-heterogeneous healthy subjects and TB patients in protective immune responses suggested HLA-DR non-restricted presentation of full-length proteins to immune cells. In conclusion, the results of this project suggest that bioinformatics-based identification of promiscuous antigens and peptides of *M. tuberculosisis* a cost-effective approach to identify HLA non-restricted antigens and peptides. Therefore, this type of analysis may further be extended to include the complete proteome of *M. tuberculosis* to identify new candidates for diagnostic and vaccine applications against tuberculosis.

Near-Field PML Optimization for Low ...(From.... P.15)

FDTD methods which are capable of simulating extremely large structures using very coarse numerical grids. Without the above detailed achievement, computing optimum CPML parameters would have been computationally prohibitive and the only recourse available to the modeling engineer would have been to increase the model size by at least 3-fold in order to attain a minimum of CPML effectiveness based on trial and error in selecting its parameters. Complete high-order FDTD reflection predictor derivations and a validation example were also detailed in this paper.

OVPR's Publications driven towards creating new dimensions in scientific awareness

Publications integral to OVPR's long-term strategy of relaying critical information, and diverting world attention on KU's scientific *policy, strengths* and *accomplishments*

Publications an enduring channel for keeping KU's scientific developments in the global eye..!

OVPR publications aim at relaying critical information on latest research developments at Kuwait University, and creating new dimensions in scientific awareness. The publications domain is, therefore, driven towards the realization of OVPR's long-term strategy of preserving and disseminating vital information on faculties research accomplishments to reach wider audience, and for diverting world attention on KU's scientific policy, strengths and accomplishments. Given this purpose, OVPR's publications continue to thrive as much on faculties scientific creativity, as on new initiatives, ongoing programs and R & D activity, for generating a whole series of descriptive and analytical reports to keep the scientific community duly informed and updated on scientific developments at KU.

This central purpose, perpetually keeps the OVPR's publications channel in full swing for the rapid generation of key documents, based on Research Sector's strategic plans, priorities and programs. Critical publications are, therefore, prepared in response to emerging needs, continuity of established series, and gross updating of existing procedural and policy documents, in an effort to provide precise, authentic and latest information on KU's research support system and priorities for the benefit of faculty researchers, and to cater to wide readership interested in keeping pace with institutional research progress, new developments and strategies for advancement.

It is precisely in this context, that newly envisioned programs, developmental priorities, reformations, intellectual acclaim, and recognition of excellence, provides the substance and source for key documents, creating new reservoirs of information, leading to the generation of a whole series of print, visual and e-documents, for global outreach. It is within this frame of reference, OVPR's constituent offices – Research Sector (RS), Academic Publication Council (APC), and Center for Gulf & Arabian Peninsula Studies (CGAPS), crucially rely on the immense power and potential of publications for wide information dispersal and exposure. Each of these offices *(RS, APC and CGAPS)*, therefore, have an intense publications agenda, involving them in the preparation of several documents, reports, journals issues, periodicals, books and scientific productions, the latest issues of which released during the period April through September 2012, are presented here, with specifics outlined below:

▲ *Some of RS recently released publications, 2012*

1. Research Sector (RS) publications (April 2012 to September 2012)

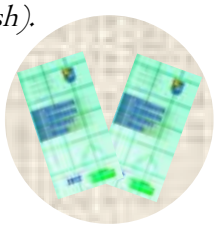
- **OVPR Research Quarterly Newsletter, March/April 2012 Issue --** Released in April 2012, OVPR's Research Quarterly Newsletter highlighted major events and happenings during the period October 2011 through March/April 2012. The key events covered were the Humanities and Sciences posters day bringing together the Humanities Colleges and Science, Engineering & Petroleum, and Women's Colleges on a common platform for displaying their respective faculties research accomplishments. Other mega-events included the signing and launching of KU-Shell Research Chair in Natural Gas, KU-UNEP inception workshop, and Ethics Workshop for Humanities. Highlights were also on revisiting humanities colleges, Distinguished Series -2, KU-KNPC Meeting, updated guidelines for final report submission, statistical updates on faculty research, and RS publications released. Also, featured were new recipients of US registered patents, research incentive rewards, latest editions of APC journals, and delegations visiting OVPR. For readers information, the Research Quarterly Newsletter is widely distributed, and also displayed on OVPR website *(http://www.ovpr.kuniv.edu)*. Published *(in English and Arabic)*. **(Contd. P.19...▶)**

RS Publications Program driven towards

...(From.... P.18)

• **Scientific Committee Guidelines, 2012 --** Released in September 2012, the Scientific Research Committees Guidelines, 2012, provides an update on current requirements and responsibilities of faculty and departmental research committees, with relevant reformations, deemed necessary. The guide outlines Faculty Research Committee's sphere of functionality concerning research projects and implementation process at departmental and faculty levels. The guidelines specify requirements for formation of faculty and departmental research committees, including their mission, functions and responsibilities. The overall system evolved by RS, delineates major responsibilities and procedures applicable to research proposals submitted for funding support. The updated guidelines were released in September 2012, and also displayed on OVPR website. Published *(in Arabic and English).*

• **Researcher Awards, 2012 --** Released in September 2012, this Arabic/English document provides updated information on the earlier 2010 edition of the Researchers Awards. The document outlines the process, procedure and requirements of Distinguished and Best Young Researchers Awards, for faculty members' outstanding research accomplishments in *basic* and *applied sciences*, and in *arts & humanities.* A total of 10 awards are distributed annually, 6 in the Distinguished Researchers category, and 4 in the Best Young Researchers category. The review criteria for evaluating the awards nominees has been streamlined, with point-based system applied for selection of winners. This criteria, approved by the University Council in July 2009, continues to be applied for review and identification of top nominees under both categories of awards. The updated document has been released, and the latest requirements are being implemented for inviting faculty nominations for year 2012/13 Distinguished & Best Young Researchers awards. Published *(in Arabic and English).*



• **Graduate Students Project Prize 2012 --** Released in September 2012, this Arabic/English brochure updates the earlier 2010 edition of the Graduate Students Project Prize, awarded to postgraduate students, pursuing Master's and Ph.D. research at Kuwait University. A total of six prizes are awarded annually, 4 for Master's students and 2 for Ph.D. students in the broad fields of arts & humanities, and in basic & applied sciences. The awards are specifically meant for encouraging scientific thinking among the graduate students' community, with meritorious research accomplishments being the measure for selecting the prize winners, based on standard awards criteria, approved by the Deans Committee in May 2008. This criteria continues to be implemented for the evaluation of students prize nominees each year. The updated 2012 document has been released, and is accessible on OVPR website. Published *(in Arabic and English).*

• **Priority Research Areas 2012-14 --** Prepared as a reference guide, Priority Research Areas 2012-14 is newly documented publication, released by RS in September 2012. The document presents an enhanced coverage of newly identified priorities, listing 15 new areas of priority research, based on RS faculty-wide study, inviting the faculties suggestions and input on strategic priority areas. The faculties responses were studied and reviewed, providing the legitimate basis for the newly identified areas of priority research, offering researchers wider choices and options

for pursuing advanced and innovative research. The newly identified 15 priority areas are currently being implemented, and will remain valid until 2014. With the release of Priority Areas 2012-14 document, doors are opened for the faculties to submit relevant proposals, which are packaged with additional benefits for the project, and the researcher. The updated Priority Research Areas 2012 - 14 has been widely distributed, and displayed on OVPR website. Published *(in English and Arabic).*

• **Research Initiation Grant (RIG), 2012** – Released in September 2012, Research Initiation Guide (RIG) provides an update on the RIG incentives grants, awarded to new Kuwaiti faculty members, joining various faculties/departments at the Assistant Professor's level. The Guide outlines eligibility requirements for RIG grants, including budgetary categories and limitations, project duration, research implementation procedures, and submission of research report at the end of the project, opening opportunities for researchers to apply for well-planned comprehensive studies. A visual outlook of RIG Application processing plan is also provided, with stages outlined through which the project eventually matures to completion within 12 months. RIG 2012 has been released, and also displayed on OVPR website. Published *(in English and Arabic).*

• **Scientific Posters Booklets 2012** – RS Scientific Posters Day events provided the substance for the documentation of Humanities and Sci-

(Contd. P.20...)

OVPR Publications Released...(From.... P.19)

ences posters, displayed at the two scientific posters events, held on March 5 and 12, 2012, respectively. These led to the generation of two published documents, based on 37 posters displayed at the Humanities colleges *(Arts, Business Administration, Education, Sharia, and Social Sciences)* event, and 50 posters collectively highlighting the scientific works of the Colleges of Engineering & Petroleum, Science and Women participants. The documents include exact replicas of the posters displayed in an image format, to give the readers an insight into the range and diversity of scientific research activity at Kuwait University, and the areas currently being researched across humanities and sciences colleges. The documents were produced and printed in-house in a marathon start-to-finish exercise, leading to the generation of humanities and sciences posters booklets, which were widely distributed, and displayed on OVPR website. Prepared/Printed *(in English and Arabic).*

II. Academic Publication Council (APC) Publications *(April - September 2012)*

The Academic Publications Council has been equally prolific in the production and generation of several scientific journals, the latest editions of which are as follows:

Journals released by APC during the period April 2012 through September 2012:

- Journal of the Gulf & Arabian Peninsula Studies, Vol. 37, No. 143, October 2011.
- Journal of the Gulf & Arabian Peninsula Studies, Vol. 38, No. 144, January 2012
- Journal of the Gulf & Arabian Peninsula Studies, Vol. 38, No. 145, April 2012.
- Journal of Sharia & Islamic Studies, Vol. 27, Issue 88, March 2012.
- Journal of Sharia & Islamic Studies, Vol. 27, Issue 89, June 2012.
- Journal of Sharia & Islamic Studies, Vol. 27, Issue 90, September 2012.
- Journal of Social Sciences Vol. 38, No. 4, 2011 Issue.
- Journal of Social Sciences Vol. 40, No. 1, 2012 Issue.
- Arab Journal of Administrative Sciences, Vol. 27, Issue 88, March 2012.
- Arab Journal of Administrative Sciences, Vol. 19, No. 2, May 2012.
- Arab Journal of Administrative Sciences, Vol. 19, No. 3, September 2012.
- Arab Journal for the Humanities, Vol. 30 No. 118, Spring 2012.
- Arab Journal for the Humanities, Vol. 30, No. 119, Summer 2012.
- Annals of Arts and Social Sciences, Vol. 32, March 2012.
- Annals of Arts and Social Sciences, Vol. 32, June 2012.

III. Center for Gulf & Arabian Peninsula Studies (CGAPS) Publications

The Center for Gulf and Arabian Peninsula Studies (CGAPS) underwent major structural transformations following the University Council Decision No. 3/2011, dated July 6, 2011, approving the inclusion of Center for Strategic & Futuristic Studies within the organizational frame of CGAPS. Affiliated to the Office of the Vice President for Research, the Center is specialized in research and studies concerning the Gulf and Arabian Peninsula, and aims at highlighting the regional uniqueness, critical concerns, characteristics and resources, through research, seminars, conferences, and cultural activities. It is within this framework, the Center recently organized an exclusive lecture on the *"Dimensions of Constitutional Problems in Kuwait,"* held on September 26, 2012, marking the beginning of its cultural season for the academic year 2012/13. The Center's publications however, provide a dynamic view of its wide-ranging activities, and include:

- Registry of Current Events in the Gulf and Arabian Peninsula geographical region, a periodical released by the Center.
- Special Issues Series, a refereed

(Contd. P.31... ▶)

Some of the APC Journals released

RS begins implementing 15 New Priority Areas ...(From.... P.7)

research and studies in areas of contemporary interest for the researchers to pursue advanced and innovative research, by availing RS supportive procedures, backed by rapid grant clearance and specialized facilities.

The new priority areas have since been documented in a handy guide, released by the RS in September 2012, which provides a comprehensive listing of all 15 new areas of priority research, in both Arabic and English. The Priority Research Areas 2012-14 reference guide has been widely distributed and displayed on OVPR and RS websites for online access. For researchers information, the new research priority areas are already being implemented, and would remain valid over the next two years, from September 2012 until September 2014, with RS anticipating faculties dynamic involvement in initiating and pursuing research in the newly identified priority areas. The Research Sector on its part, would ardently encourage and aim at engaging the faculties in pursuing issues that are strategic, contemporary and most relevant in current times.

New Priority Research Areas 2012-14

1. *Renewable and Alternative Energy Resources*
2. *Water Resources, Management and Technology*
3. *Enhanced Oil Recovery and Heavy Oil Exploration and Production*
4. *Impact of Environmental Pollution in Kuwait (Including Health Impacts)*
5. *Causes, Risk Factors and Bio-Predictors of Cardiovascular Diseases*
6. *Diabetes and Cancer*
7. *Contemporary Social Phenomena in the Kuwaiti Society*
8. *Transportation Problems and Solutions*
9. *Food and Water Security*
10. *National Information Security and E-Government*
11. *Citizenship and National Unity*
12. *Education Curricula and its Outcomes*
13. *The Strategy of Kuwait's Transformation to a Financial and Commercial Center*
14. *Participation of Private Sector in Developmental Programs*
15. *Islamic and Arabic Literature*

KU-KPC research collaboration ...(From.... P.4)

of KU-KPC collaborative projects, provided the ideal platform for unveiling the newly devised flare system.

The accomplishment, and successful outcomes of this project is attributable to the close coordination and efforts of three institutions, KPC, KU and PIC, where KPC was responsible for funding support, KU for implementing the project, and PIC for rendering technical support.

Given this strategic outcome, while the PIC's mission categorically stands accomplished, it has further provided the scope for future studies in the field, beyond the project's immediate objectives, for more advanced and innovative studies that could yield potentially significant results of scientific and economic value for the oil industry, and effectively contribute in addressing national developmental priorities, and in serving society.

While looking beyond this study the collaborative parties are already onto identifying additional concerns that could be taken up as research studies in valued partnership with Kuwait University, whose enormous expertise and innovative powers stand amply demonstrated through the exceptional findings of this joint KU-PIC project.

New Guide to Subject Areas 2012/13 ...(From.... P.8)

departmental identifiers to be affixed within respective faculties. Such codes would enable researchers to shortlist areas that critically define their research interests, within a broad disciplinary field. As usual, the preparation of the new guide would remain a collective RS-Faculty endeavor, with faculties providing the subjects information, and RS classifying the scientific subjects with digital codes assigned, as an intense preparatory activity for generating the updated guide. Having invited the faculties to submit their modified as well as new subject areas, both in Arabic/English for ensuring terminological precision/accuracy, RS anticipates the requisite information from faculties to reach by November 4, 2012, the closing date, for expediting the timely preparation and release of Guide to Subject Areas 2012/13.

Kuwait-India ties rich, historic, and improving

Special Session on Kuwait India Relationship provides stimulating grounds for boosting cooperation and strengthening relations

Under the Patronage of Kuwait University President, Prof. Abdullatif Al-Bader, and with the initiative of the Vice President for Research, Prof. Hasan Al-Sanad, a special session, organized by the Embassy of India and Center for Gulf & Arabian Peninsula Studies, Kuwait University, Kuwait, on *Kuwait India Relationship and Strategic Outlook,* was held on Wednesday, June 6, 2012, at 5 pm., at the University Council Senate, to felicitate distinguished presence of a high-level Indian delegation that included honorable Mr. Rahul Gandhi, Member of Parliament and Congress General Secretary, H.E. Mr. Satish Mehta, Ambassador of India to Kuwait, and Mr. Kanishka Singh, Advisor to Mr. Rahul Gandhi. Extending a warm welcome to the elite guests, Prof. Hasan introduced the distinguished faculty members and colleagues from Kuwait University, an elite group of academicians, social scientists, economists, political and regional experts, media, and activists, ` providing vital substance and grounds for an intellectual simulation and free-flow of ideas, opinions and thoughts to reinforce the historic and valued Kuwait- India relationships, the contemporary politico-social, economic and regional concerns, and their implications for a stronger, sustainable and enduring strategy for the future, that spurs development, and carries with it the spirit and seeds of growth, stability and cooperation.

Prof. Abdullatif Al-Bader with Mr.Rahul Gandhi

> Both sides echo the need for working together and carrying forward the existing bonds

Prof. Hasan Al-Sanad with H.E. Satish Mehta, Amdassador of India

Special Session in Progress...

H.E. Mr. Mehta expressed his appreciation for the cordial welcome, and said that for Mr. Gandhi. his first visit to Kuwait, was an opportunity to know and learn as to what can be done to take forward the historic India-Kuwait relations, rooted in culture, and nurtured on a strong emotional bond, that provides a great building block to carry forward this relation. Mr. Gandhi, having grown, seeing the historic relations between the two countries strengthening and growing, foresees further accentuation of this bond, a cementing process, attainable through both sides working together. The need for working together is immensely significant in view of the geographic proximity of the two countries, and the vital social, economic and security concerns confronting the region that implicitly necessitate India's strategic support. Regardless of Kuwait's economic vitality, and small size, the country's *vision, aspirations* and *goals* are ambitious, for which (Contd. P.23...)

Special Session on Kuwait India Relationship...(*From.... P.22*)

security and stability, are a dire necessity to expedite development, based on bonds of mutual cooperation, for a stronger and better future.

Among wide-ranging thoughts and diversity of views expressed during the session, some key areas that provided scope and substance for India to assume vital role concerned enhancing social and political relations that are *people-to-people* and *government–to-government* centric, trade ties, both oil and non-oil products, improving economy, cooperation in medical and nursing sector, as well as media assuming an enhanced role in improving relations. There was a general consensus for both sides to work together to enhance the relations, harnessing their full potential, and building on the social, economic and political culture, as also to establish universities, friendship societies, centers, professional associations, as well as for pursuing joint studies and research, and benefitting from India's think tanks for exploring wider collaborative possibilities in the spheres of education, research, security, social, and cultural areas. Responding to the diverse views, Mr. Gandhi said that India is fundamentally building democratic structures, and power in India is being decentralized. The current thrust is on releasing people from traditional infrastructure and enhance connectivity, the virtues that simulate people's spirit, energizing them to realize their full potential towards achieving their goals and aspirations. The fundamentals in India are very strong, and the people's voice reaches the portals of power, and is heard politically. In concluding a highly engrossing session, Prof. Al-Bader said, "what was striking in India was the people's togetherness, regardless of their socio, economic and ritualistic leanings and disparities, their togetherness bespeaks of their *strength* as well as their *power* for accomplishing their aspirations and goals, and we need to learn from that spirit of togetherness, and how to live." Prof. Hasan then thanked the elite delegation, and distinguished gathering for a very simulating session.

A View of the Participants

The Update...

Carrying forward the shared experiences and thoughts exchanged during the KU-India Special Session, an encouraging response from Mr. Rahul Gandhi was received by the Vice President for Research, Prof. Hasan Al-Sanad, communicating his hope as regards the strengthening of bonds between the two countries, based on shared thoughts on pressing priorities, and potential for partnership, while looking forward to seeing the Vice President in India. Considering this an opportunity for exploring avenues and aspects for greater cooperation in scientific and cultural fields through seminars, conferences, exhibitions, and events, Prof. Hasan believes that a conceptual framework could be evolved for the partnership process to grow, laying the path for cooperation in joint activities.

For the Center for Gulf and Arabian Peninsula Studies (CGAPS), while acknowledging the contributions of all those involved in developing the creation of this project, the aspect of Kuwait-India Relations fell within the framework of the center's cultural season activities, and needed a mutually agreeable mechanism, that could be implemented in the long-run.

A line-up of Kuwait - India Participants

New reformations aimed at enhancing knowledge and globalizing KU research

University Council approves continuity of research rewards stimulus for faculties 'high impact' funded and unfunded published research

Incentives also to continue for *'excellent'* Project Final Report

Encouraged by the steadily improving scientific quality graph in faculties published research, with a growing number of publications finding placement in high quality international journals of impact, the University Council in its meeting No. 2012/3, held on April 18, 2012 approved continuity of research rewards stimulus with new reformations in recognition of the crucial role of scientific research in enhancing knowledge, and internationalizing KU research. The continuity of the incentives was approved for faculties published research in international refereed journals of high impact, based on JCR ranking index.

The need for extending the stimulus reward was in view of the expiry of the initially approved duration, which allowed grant of incentives for two years, as a preliminary phase of assessing their effectiveness in bolstering the quality of research at KU. This phase significantly demonstrated, the culture of quality permeating across faculties, and increasingly visible in the growing number of research publications finding placement in high quality, high impact refereed journals of international credibility. Available statistics on quality research outputs further provided the rationale and grounds for the continuity and sustenance of research rewards stimulus in strengthening the quality tide in KU research, as a desired virtue towards elevating the status and standard of KU research to acquire global dimensions.

It is significant to recall that the incentive rewards, having been approved by the University Council on July 15, and 20, 2009, paved the way for rewarding incentives to faculty members for their high quality funded and unfunded research, as an encouragement to publish their research in top-ranking international journals of significant impact. It was also decided that the incentive rewards would be evaluated after two years of implementation, to assess their effectiveness, as legitimate grounds for their sustenance as quality-boosters. Having set the procedures for the rewards, the actual implementation of the rewards started from April 1, 2010, and since then a total of 143 recipients have won these rewards so far on the basis of their distinguished high quality published research and project final reports. The distribution of these rewards included 47 (32.9%) beneficiaries for funded research, 63 (44%) for unfunded research, and 33 (23.1%) for excellence in their project final report.

> *So far, 143 beneficiaries have won the rewards for their funded, unfunded and project final report*

With the culmination of the preliminary phase of rewards implementation, and the growing number of rewards beneficiaries, there existed favorable grounds for the matter figuring on the Deans' Committee's agenda in meeting No. 2/2012, held on March 21, 2012, where considering the role and promising outlook of the incentives stimulus in gearing-up the faculties research quality, the Committee recommended the awards continuity with new reformations suggested by the Vice President for Research, as measures towards ensuring sustained improvement in high quality research at KU that enhances knowledge and globalizes institutional research. These measures, as recommended by the Deans' Committee, were approved by the University Council with following reformations:

I. Incentives for Funded Research

1. An Incentive Reward of KD 1000/- is given to the PI, or all researchers (in case of multi-authorship), for each research paper, generated from KU Research Grant, and published in top 25% of the International journals with Impact, evaluated according to JCR in the candidate's scientific field.

   **The award is given for a maximum of two research papers per year.*

2. The Research Sector specifies the share of reward for each researcher in multi-authorship paper(s).

3. An award of KD 500/- is given to the PI for each Project Final Report of funded research that

(Contd. P.25... ▶)

Indoor Air Quality and Energy Conservation ...(From.... P.16)

the 100% fresh air without the PEC. At higher DV supply temperatures, the PEC resulted in improved comfort of head and chest leading to comfort level similar to the CC/DV comfort obtained at lower supply temperature with the aid of the PEC.

Since the CC/DV system can be supplied at higher temperature, the energy consumption of the system decreased resulting in energy savings of about 6% for each 1.0 °C increase in supply temperature when using 100% fresh air. When return air is mixed at 60% fresh air ratio, additional 25% in energy savings is obtained.

The CC/DV system aided with PEC provides high potential for saving energy in climates that are hot and dry.

C. Transient Comfort in CC/DV Rooms Aided with Personalized Evaporative Coolers

We studied by modeling and field survey the transient thermal comfort of human subjects moving from transitional space at 35-40°C to a room conditioned by a chilled ceiling displacement ventilation CC/DV system aided with a personalized evaporative cooler (PEC) directed towards the occupant trunk and face.

Thermal sensation and comfort of the participants are captured via a questionnaire completed at multiple intervals until comfort is attained. Each experiment is performed for two cases when the participant entering the CC/DV room does not use the PEC and when the participant uses the PEC to attain comfort. Inside the CC/DV conditioned space, the air temperature, air speed, mean radiant temperature, temperature and relative humidity, were measured and recorded in the vicinity of the subject's upper trunk (neck) and face. A transient segmental bioheat model coupled with thermal comfort and sensation assessment models is used to predict comfort and compare with questionnaire results. The calculated sensation using sensation scale from -4 (very Cold) to +4 (very hot) compared well with the data obtained from the questionnaires.

At steady state, the DV supply air temperature at 21°C and TC=17°C provide equal thermal comfort at steady state to DV supply air temperature at 23°C and TC=17°C with PEC at flow rate of 10 *l*/s. The comfort of occupants during the transient period improved when PEC is turned on and the participant is permitted to change the flow rate setting up to 10 *l*/s.

University Council approves continuity of research rewards ...(From.... P.24)

achieves "Excellent" rating from an external referee, for the scientific and humanities faculties, with the exception of the faculty of Sharia & Islamic Studies, and the Arabic Language department of Arts faculty

**The award is given only for one project per year.*

4. The Award of KD 1000/- is given to the PI for each Project Final Report of funded research that achieves "Excellent" rating from an external referee for the faculty of Sharia & Islamic studies, as well as for the Arabic Language department of the Arts Faculty.

**The award is given only for one project per year.*

II. Unfunded Research

1. An award of KD 1000/- is given to the PI, or all researchers *(in multi-authorship paper)* for each published research paper in top 25% of the International journals with impact factor evaluated as per the JCR standard, in the candidate's scientific field.

**The award is confined to a maximum of two research papers per year.*

2. The Research Sector specifies the share of each researcher in multi-authorship paper(s).

Faculties encouraged to be active participants & partners in elevating the status of KU research

RS annual statistics reveal a progressive incline in faculty research with 570 *ongoing, completed* and *under-process* projects during 2011/12

Focus on *Quality, distinction* and *excellence* as key drivers in achieving internationally credible outputs

The yearly statistics on faculty research activity, during the academic cycle 2011/12, exhibited a progressive incline, with a cumulative total of 570 projects defining the sphere of ongoing, completed and under-process projects, spanning the period September 1, 2011 to August 31, 2012. Statistically, available data showed all faculties to be the grant recipients, though their respective participation levels significantly varied in terms of the actual number of projects enlisted under their respective faculty domains. In fact, these differential activity levels have been the key factor in RS current strategy of making the system attractive by incorporating reformatory and flexible measures, backed by enhanced communication, to invigorate faculties active involvement in grants activity, and enlisting their confidence in research support system. While the gross impact of these measures would increasingly become apparent over time, in numerical terms, 570 projects provided a collective outlook of total faculty research during 2011/12, of which 337 (59.1%) projects were ongoing, 131 (23%) completed, and 102 (17.9%) under-process (Table 1).

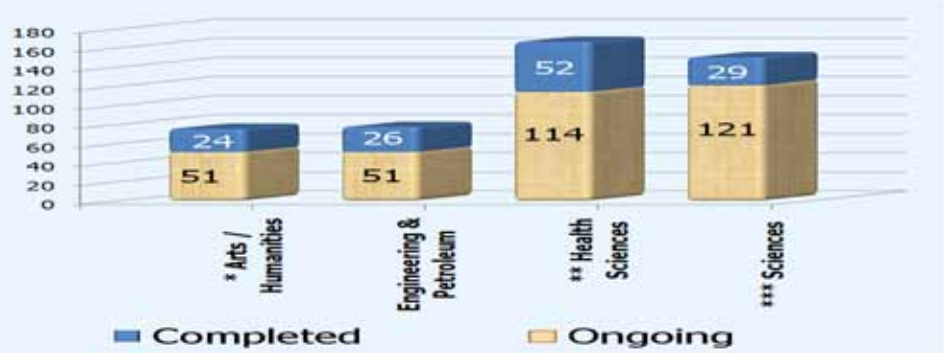
The statistics also demonstrated faculties increased predilection to larger more comprehensive projects, with 266 (46.7%) projects appearing in the highest budgetary level of more than KD 8500/-, while smaller and medium-range grants accounted for 151(26.5%) and 153(26.8%) projects, respectively. This appeared a promising development in institutional research, with well-defined comprehensive studies increasingly gaining precedence over projects with limited objectives. RS considers this development significant for pursuing research in areas that are strategic, scientifically challenging, and fall within the priorities frame, requiring multidisciplinary input and collaborative research. While RS current thrust is on promoting joint and (Contd. P.27... ▶)

Table 1. TOTAL RESEARCH ACTIVITY
Academic Year 2011/12 *(Sept. 1, 2011 to Aug. 31, 2012)**

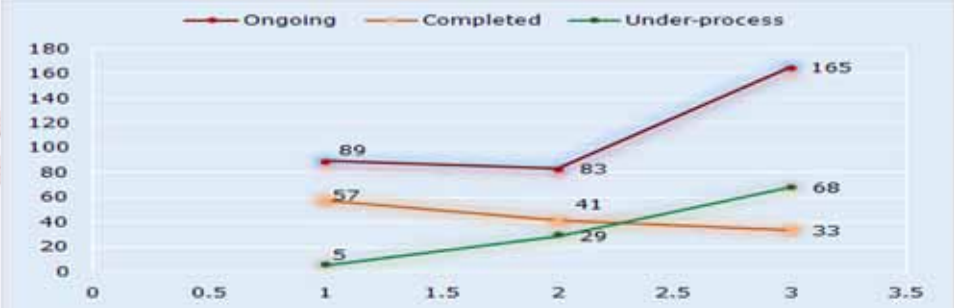
Project Status	Funding** Levels: less than 2501	2501 - 8500	more than 8500	Total
Ongoing	89	83	165	**337** (59.1%)
Completed	57	41	33	**131** (23%)
Under-process	5	29	68	**102** (17.9%)
TOTAL	**151** (26.5%)	**153** (26.8%)	**266** (46.7%)	**570**

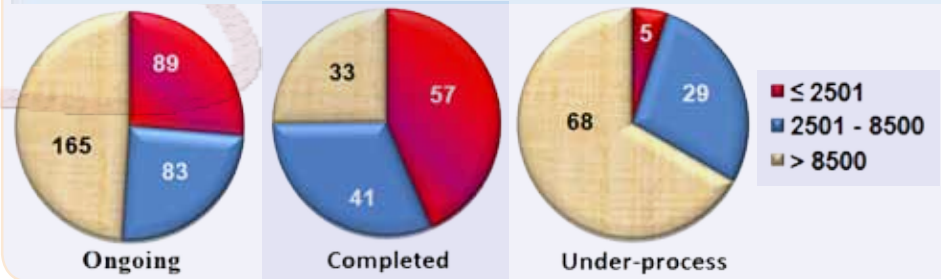
73.5%

* *Source KURA, Data upto August 31, 2012 (Includes ongoing/completed projects from previous year).*
** *Values in KD.*



* *Includes the Faculties of Arts, Business Admn., Education, Law, Sharia and Social Sciences.*
** *Health Sciences Center Includes Faculties of Allied Health Sciences, Dentistry, Medicine and Pharmacy.*
*** *Includes Faculties of Science and Women.*





collaborative research, current statistics complemented this development, with 165(49%) ongoing, and 68 (66.7%) under-process projects figuring under the highest budgetary category, indicating faculties growing preference for well-designed studies, requiring substantial resources and facilities. However, in the context of completed research, maximum 57 (43.5%) projects were in the lowest budgetary level of less than KD 2501/-, which could largely be attributable to smaller duration projects, having limited objectives, as well as completion of RIG projects having 12-month lifespan.

Considering the 102 under-process proposals alone, as many as 97 (95.1%) grant-requests were for medium to higher budgetary support, with only 5 (4.9%) proposals seeking less than KD 2501/- funding support (Table 1). This again shows emerging signs of faculties interest and attention towards bigger-budgeted proposals for the redressal of critical concerns and priorities. Whether this diversion would indeed set a trend in faculty research, only the coming years would foretell.

As regards the faculties performance index, available statistics provided the current performance outlook based on a total of 468 (82.1%) ongoing and completed projects during 2011/12. Of these, 337 (72%) were ongoing projects, and 131(28%) completed projects. In addition, 102 (17.9%) proposals in various pre-approval stages, were rapidly progressing towards acquiring the active status. Thus, ongoing, completed and under-process projects, together revealed faculties continuous research participation and performance, as an ongoing continuum in advancing institutional research.

Comparing the faculties individual performance, the Health Sciences Center faculties *(Medicine, Dentistry, Pharmacy and Allied Health Sciences)* topped the performance index with 166 (35.5%) ongoing & completed projects, followed by Sciences faculties *(Science + Women)* with 150(32.1%) ongoing & completed projects, Engineering & Petroleum faculty enlisting 77 (16.4%) ongoing & completed projects, and Arts & Humanities faculties (*Arts, Business Administration, Education, Sharia & Social Sciences, and law)* combined performance recording 75 (16%) ongoing & completed projects (Table 2).

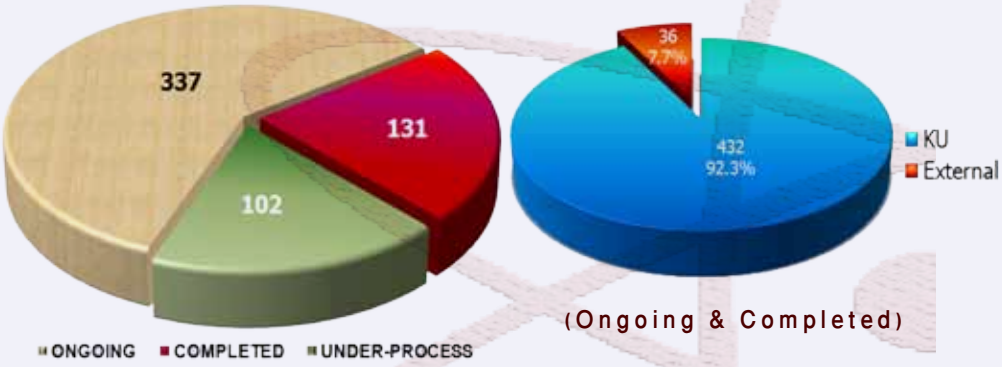
Statistics on 102 under-process projects, further revealed faculties continued interest in building on their scientific strengths through newly conceptualized and submitted proposals for grant awards. Faculty-wise, maximum under-process projects 36 (35.3%) were submitted by the Sciences faculties, followed by 27(26.5%) projects by Health Sciences, 26(25.5%) (Contd. P.28...)

Table 2. TOTAL ONGOING, COMPLETED &UNDER-PROCESS PROJECTS *by* FACULTY & FUNDING SOURCE

Academic Year 2011/12 *(Sept. 1, 2011 to Aug. 31, 2012)**

FACULTY	ONGOING		COMPLETED		UNDER-PROCESS		TOTAL		GRAND
	KU	EXT**	KU	EXT	KU	EXT	KU	EXT	TOTAL
Allied Health Sciences	7	1	3	-	7	-	17	1	**18**
Arts	13	1	3	1	1	-	17	2	**19**
Business Admn.	9	-	3	-	1	-	13	-	**13**
Dentistry	17	1	12	1	1	1	30	3	**33**
Education	5	1	4	1	4	-	13	2	**15**
Engineering & Petroleum	45	6	25	1	22	4	92	11	**103**
Law	1	-	1	-	-	-	-	-	**2**
Medicine	69	7	33	1	7	8	109	16	**125**
Pharmacy	12	-	2	-	3	-	17	-	**17**
Science	95	10	20	2	25	4	140	16	**156**
Sharia	8	-	1	-	-	-	9	-	**9**
Social Sciences	12	1	10	-	5	2	27	3	**30**
Women	15	1	7	-	7	-	29	1	**30**
TOTAL	**308**	**29**	**124**	**7**	**83**	**19**	**515**	**55**	**570**
	337		131		102		570		
	468								

* *Source KURA, Data upto August 31, 2012.*
** *External Institutions.*



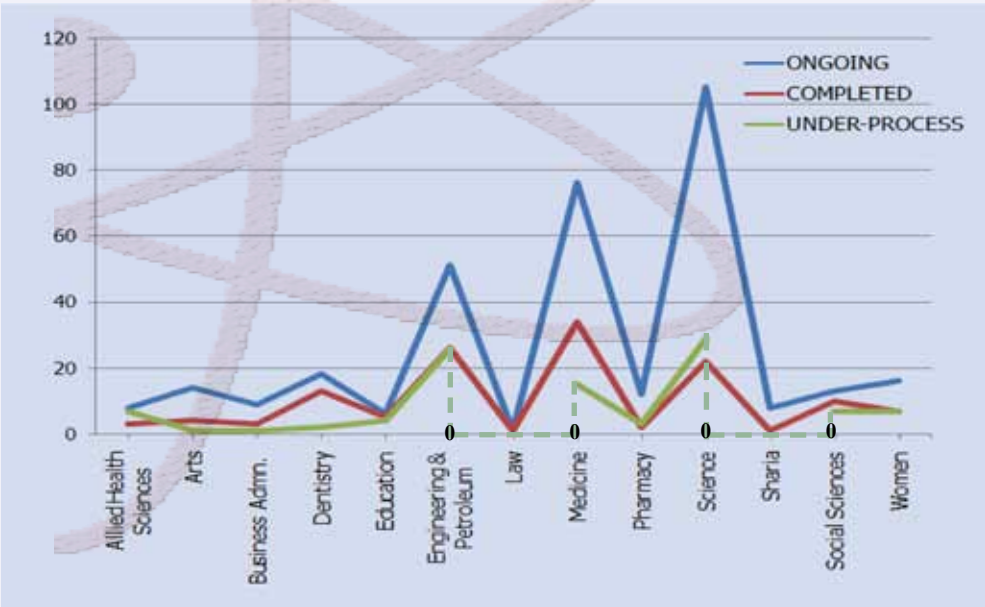
Statistics on Faculty Research ...(From P.27)

projects by Engineering & Petroleum, and 13 (12.7%) projects by Arts & Humanities faculties. A further analysis of 337 ongoing projects showed Science colleges *(Science & Women)* to be the biggest grant recipients with 121 (36%) grant awards, followed by Health Sciences faculties with 114 (33.8%) projects, while the faculties of Engineering & Petroleum, and Arts & Humanities were the equal claimants, each accounting for 51 (15.1%) grants (Table 2).

Table 3. PROJECT STATUS *by* FACULTY & FUNDING LEVELS**
Academic Year 2011/12 *(Sept. 1, 2011 to Aug. 31, 2012)**

FACULTY	ONGOING			COMPLETED			UNDER-PROCESS			TOTAL
	less than 2501	2501 - 8500	more than 8500	less than 2501	2501 - 8500	more than 8500	less than 2501	2501 - 8500	more than 8500	
Allied Health Sciences	3	1	4	1	-	2	2	1	4	18
Arts	4	9	1	4	-	-	1	-	-	19
Business Admn.	6	3	-	2	1	-	-	1	-	13
Dentistry	9	2	7	7	5	1	-	1	1	33
Education	2	2	2	4	-	1	-	3	1	15
Engineering & Petroleum	12	10	29	13	2	11	-	6	20	103
Law	1	-	-	1	-	-	-	-	-	2
Medicine	14	24	37	6	22	6	-	1	12	125
Pharmacy	4	1	7	1	1	-	-	1	2	17
Science	12	19	74	8	5	9	1	6	22	156
Sharia	6	2	-	1	-	-	-	-	-	9
Social Sciences	6	7	-	6	2	2	1	4	2	30
Women	10	3	3	3	3	1	-	5	2	30
TOTAL	89	83	165	57	41	33	5	29	68	570
	337			131			102			

* *Source KURA, Data upto August 31, 2012.*
** *Values in KD.*



The distribution of 337 ongoing projects by funding-levels, showed maximum 165 (49%) projects in the highest budgetary category of more than KD 8500/-, while 89 (26.4%) projects accounted for less than KD 2501/-, and an additional 83 (24.6%) projects were grouped under the medium-budgetary range of KD 2501-8500/- (Table 3). However, the completed projects (131) showed a reverse pattern, with maximum 57(43.5%) completed projects listed in the less than KD 2,501/- budgetary category, 41 (31.3%) projects in the medium budgetary range of KD 2,501 – 8,500/-, and 33 (25.2%) projects in the highest budgetary category of more than KD 8,500/- category. Faculty-wise distribution of completed projects showed Health Sciences faculties scoring a higher (52, 39.8%) project completion rate, than the Sciences faculties with (29, 22.1%) completed projects, Engineering & Petroleum faculty enlisting 26(19.8%) completed projects, and Arts & Humanities faculties registering 24 (18.3%) completed projects (Tables 2 & 3).

In terms of funding support, KU remained the biggest grant provider in sponsoring an overwhelming 432 (92.3%) ongoing and completed projects during 2011/12, while the remaining 36 (7.7%) ongoing and completed projects were supported by as many as eight external institutions. These figures are a significant pointer to KU's critical role in being the fundamental lifeline in *promoting, supporting* and *sustaining* the advancement of institutional research, at a time when RS is simultaneously building external alliances for raising the quality, content and relevancy of scientific research at KU, through faculty efforts, as well as through joint and collaborative research in partnership ventures. It is precisely in this context that the participation of 8 external institutions in sponsoring faculty research, assumes significance, and signals a reassuring development in

(Contd. P.29...)

Statistics on Faculty Research ...(From P.28)

spurring faculties creative potential in the pursuit of strategic and solution-based concerns, that could yield results of potential benefit to science and society. RS thrust would, therefore, remain on encouraging faculties, and on enhancing external partnerships, for building institutional scientific strengths, and for advancing KU R & D capabilities.

Given this strategy, RS recorded a total of 36 (7.7) jointly conducted projects during 2011/12, of which maximum 27 (75%) projects were sponsored by Kuwait Foundation for the Advancement of Sciences (KFAS), and the remaining 9 projects received funding support from other institutions. These included, Kuwait Petroleum Corporation (KPC) supporting 3(8.3%) projects, while 1 (2.8%) project each was supported by the Environmental Public Authority (EPA), UNESCO, Novo Nordisk Company (NOC), Kuwait Oil Company (KOC), Kuwait National Guards (KNG), and Astra-Zeneca, respectively (Table 4). Considering the funding requirements of currently under-process 102 projects, available data showed, maximum 83 (81.4%) projects lined up for KU funding support, and an additional 19 (18.6%) newly submitted projects were claimants of external support, further reinforcing the role of external institutions in RS sponsored program, and in creating new and additional channels of support in advancing KU research.

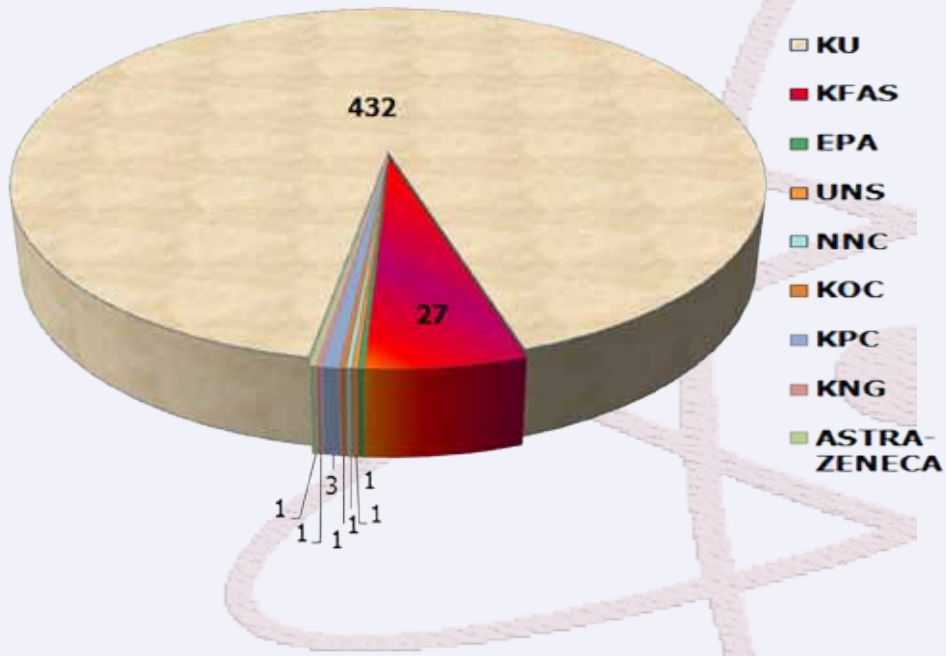
In terms of Types of Grants, Table 5 provides a faculty-wise outlook of research activity under various grant support categories. Of the 337 ongoing projects, the largest number of 222 (65.9%) projects were in the University Research grants category, while the remaining 115(34.1%) grants were distributed over other types of grants. These included, 39 (11.6%) Graduate Student projects, 28 (8.3%) External projects, 21 (6.2%) General Facility projects, 18 (5.3%) RIG grants, 6 (1.8%) Priority Research projects, 2 (0.6%) University Service projects, and 1 (0.3%) National Research project. There were no GCC joint projects during 2011/12. Overall, University Research grants were the most preferred support category by faculties for mainstream research. In the context of completed projects, maximum 82 (62.6%) project-completion was once again found associated with the University Grants category, while completed projects (Contd.P.31...)

Table 4. TOTAL ONGOING & COMPLETED RESEARCH PROJECTS *by* FUNDING SOURCE, 2011/12
(Sept. 1, 2011 to Aug. 31, 2012)

FACULTY	KU	KFAS	EPA	UNS	NNC	KOC	KPC	KNG	ASTRA-ZENECA	TOTAL
Allied Health Sciences	10	1	-	-	-	-	-	-	-	11
Arts	16	2	-	-	-	-	-	-	-	18
Business Admn.	12	-	-	-	-	-	-	-	-	12
Dentistry	29	2	-	-	-	-	-	-	-	31
Education	9	2	-	-	-	-	-	-	-	11
Engineering & Petroleum	70	3	1	-	-	-	2	1	-	77
Law	2	-	-	-	-	-	-	-	-	2
Medicine	102	6	-	-	1	-	-	-	1	110
Pharmacy	14	-	-	-	-	-	-	-	-	14
Science	115	10	-	-	-	1	1	-	-	127
Sharia	9	-	-	-	-	-	-	-	-	9
Social Sciences	22	1	-	-	-	-	-	-	-	23
Women	22	-	-	1	-	-	-	-	-	23
TOTAL	**432**	**27**	**1**	**1**	**1**	**1**	**3**	**1**	**1**	**468**

* *Source KURA, Data upto August 31, 2012 (Include ongoing/completed projects from previous year).*

KU Kuwait University
EPA Environmental Public Authority
NNC Novo Nordisk Company
KPC Kuwait Petroleum Corporation
KFAS Kuwait Foundation for the Advancement of Sciences
UNS UNESCO
KOC Kuwait Oil Company
KNG Kuwait National Guards
ASTRAZENECA



National seminar on Climate Change...(*From.... P.11*)

conference of the parties to the UNFCCC, scheduled to be held in Doha, Qatar, during November 2012, as *Doha Climate Change Conference,* which would involve Kuwait University's active participation and presentation for sharing Kuwait's experience on climate change and its implications.

For the Research Sector, the completion of the KU-UNEP project categorically signifies and strengthens the emerging partnership process between Kuwait University and the United Nations Environment Program, providing enduring grounds for further, more comprehensive studies in the field, with environment being a strategic area of priority research at KU, and for the State of Kuwait. Indeed, the national initiative on climate change, not only brought together KU and UNEP in the joint pursuit of research in one of the most significant scientific areas, it also actively involved the cooperation of Environmental Public Authority (EPA), the meteorological administration, and Kuwait Petroleum Corporation (KPC) in implementing the UNEP sponsored project for accomplishing the goals of scientific research, and in combating the repercussions of the climate change through collective efforts for developing a feasible strategy to overcome the negative impacts of environment on the State of Kuwait, and the society. The broader intent, however, is to find practical solutions to environmental concerns through a better understanding of the vast knowledge, based on past records and present data, for appropriate actions and strategies aimed at protecting Kuwait for the impacts of climate change. In addition, it is also intended to provide opportunities for emerging scientists, scholars and students to actively pursue scientific research in addressing environmental and climatic concerns, and effectively contribute towards accomplishing the goals of national initiative on climate change.

Dr. Abdulmajeed Hadad, UNEP's West Asia Representative

At this juncture, with the completion of the collaborative project, while the report on the profound implications of the national initiative on climate change is undergoing the standard review process, major research findings and recommendations are simultaneously being adapted to the requirements of the UN guidelines and format, in preparation for their eventual adoption and declaration.

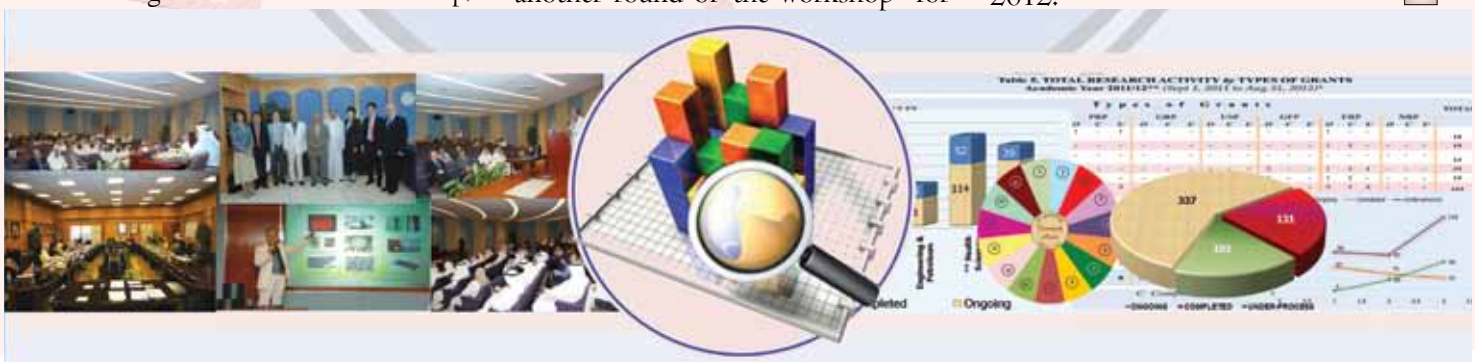
RS organizes SPSS workshop ...(*From.... P.5*)

and generous facilities aimed at developing faculties research capabilities at Kuwait University.

This objective could only be achievable through the adoption of international systems and standards that establish the credibility and quality of scientific research outputs at KU, and attribute significantly towards elevating the status of KU research. The large turnout of graduate students and new faculty members, amply showed the participants interest in the significance of the workshop, and its potential benefit in strengthening humanities research.

Key speaker at SPSS Workshop being awarded Mementos

Their response was immensely encouraging for RS in venturing into another round of the workshop for the benefit of all those interested faculty members and students community who could not avail the current opportunity, and can now attend the next workshop, scheduled for Nov. 6-7, 2012.



Statistics on Faculty Research ...(From P.29)

under other categories included 25(19.1%) Graduate Student projects, 14 (10.7%) RIG grants, 7(5.3%) External grants, and 3 (2.3%) Priority Research projects. In addition, 102 newly submitted projects revealed maximum 69 (67.6%) proposals under the University Grants category, while 18 (17.6%) under-process projects were listed as External Research proposals, 8 (7.8%) were Priority Research proposals, 4 (4%) General Facility proposals, 2 (2%) Graduate Student proposals, and 1 (1%) National project proposal. No under-process proposals were listed under the GCC Grants category during 2011/12 (Table 5).

As regards research productivity, Table 6 provides a comparative view of the faculties published research over the last five calendar years (2007, 2008, 2009, 2010 and 2011), exhibiting a numerical count of faculties published output from completed projects. The publications data is listed following the calendar year, and tends to provide a measure of faculties yearly productivity levels, during a single calendar year. The data showed (Contd. P.32...)

5. TOTAL RESEARCH ACTIVITY *by* TYPES *of* GRANTS

Academic Year 2011/12** *(Sept. 1, 2011 to Aug. 31, 2012)*

FACULTY	Types of Grants																								TOTAL
	URP			RIG			PRP			GRP			USP			GFP			ERP			NRP			
	O	*C*	*U*	*O*	*C*	*U*	*O*	*C*	*U*	*O*	*C*	*U*	*O*	*C*	*U*	*O*	*C*	*U*	*O*	*C*	*U*	*O*	*C*	*U*	
Allied Health Sciences	6	2	6	-	1	-	1	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	18
Arts	12	3	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	19
Business Admn.	6	2	1	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13
Dentistry	13	9	1	-	3	-	2	-	-	-	-	-	-	-	-	2	-	-	1	1	1	-	-	-	33
Education	4	4	4	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	1	-	-	-	-	15
Engineering & Petroleum	38	18	19	2	4	-	1	3	3	-	-	-	1	-	-	4	-	-	5	1	4	-	-	-	103
Law	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Medicine	38	12	4	5	1	-	-	-	-	24	20	-	-	-	-	1	-	3	7	1	8	1	-	-	125
Pharmacy	9	2	2	2	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	17
Science	65	15	20	-	-	-	1	-	3	15	5	1	1	-	-	13	-	1	10	2	3	-	-	1	156
Sharia	7	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9
Social Sciences	12	8	5	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-	-	-	30
Women	12	6	6	3	1	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	30
TOTAL	222	82	69	18	14	-	6	3	8	39	25	2	2	-	-	21	-	4	28	7	18	1	-	1	570

*** O Ongoing (337)* *C Completed (131)* *U Under-process (102)*

* *Data upto August 31, 2012.*

URP = University Research Projects
RIG = Research Initiation Grants
PRP = Priority Research Projects
GRP = Graduate Research Projects
USP = University Service Projects
GFP = General Facilities Projects
ERP = External Research Projects
NRP= National Research Projects

OVPR Publications Released ...(From.... P.20)

scientific series based on specialized research papers.

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These documents portray the sweeping world of OVPR's publications, exhibiting the intensity of publications activity as an ongoing process of growth, and providing the essential via media for ceaseless dispersal of strategic scientific information worldwide. Having released the latest documents, the heat has already turned on OVPR's next phase of publications' consignment, with the line-up defined, and work rapidly progressing through various production phases towards final print and document delivery. The whole exercise is geared to OVPR's requirements for making available strategic publications to reach broad-based users community, spreading awareness and bringing KU's scientific accomplishments on the forefront of public attention. OVPR's publications program, therefore, remains on a constant roll, in the transmission and delivery of vital information as a relentless mission towards keeping KU's scientific developments in the global eye, with OVPR's publications providing the virtual channel towards that ultimate goal...!

Statistics on Faculty Research ...(From P.31)

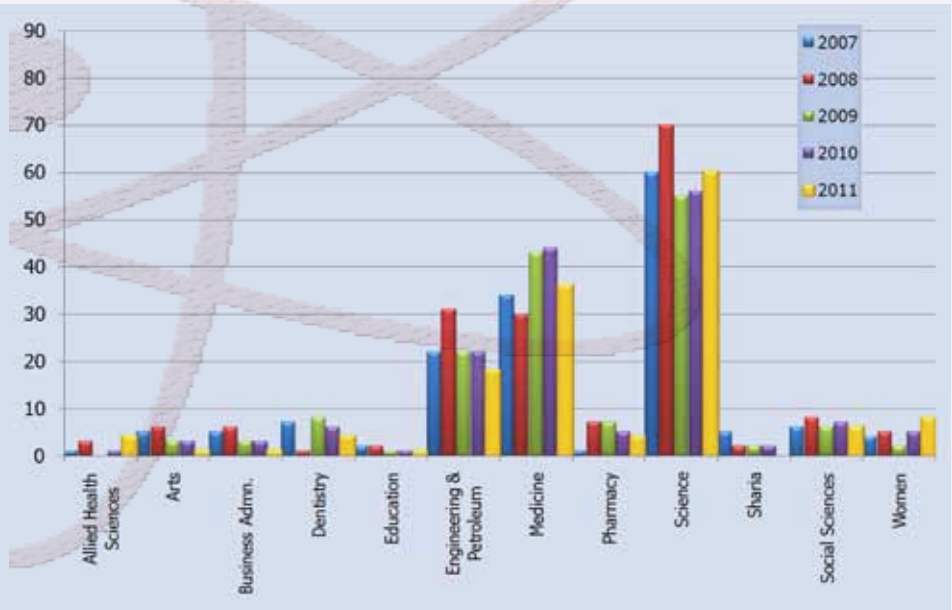
an equal number of published papers (152) during the calendar years 2007 and 2009, with an intervening spurt observed during the calendar year 2008, enlisting 171 published papers.

In the year 2010, faculties productivity accounted for 155 published papers, and in 2011, data records showed 143 publications, with a scope for upward increase, attributable to the inclusion of currently accepted papers as published journal articles in the year ahead. Hence, productivity count for 2011 is a tentative figure, with likelihood of further increase in 2011 publications' record, tied as it is with the timing of specific journal-release.

Table 6. PUBLISHED PAPERS, COMPARATIVE Five CALENDAR YEARS*, 2007, 2008, 2009, 2010 & 2011

FACULTY	Calendar Years 2007	2008	2009	2010	2011
Allied Health Sciences	1	3	-	1	4
Arts	5	6	3	3	1
Business Admn.	5	6	3	3	1
Dentistry	7	1	8	6	4
Education	2	2	1	1	1
Engineering & Petroleum	22	31	22	22	18
Law	-	-	-	-	-
Medicine	34	30	43	44	36
Pharmacy	1	7	7	5	4
Science	60	70	55	56	60
Sharia	5	2	2	2	-
Social Sciences	6	8	6	7	6
Women	4	5	2	5	8
TOTAL	**152**	**171**	**152**	**155**	**143**

* *Figures for Published papers both refereed / unrefereed, coordinate with calendar year (Jan. 1 to Dec.31).*



The above statistical profile brings into sharp focus the entire spectrum of faculty research activity during the academic year 2011/12, with some faculties showing growth, some retaining their activity level, while still others exhibiting a decline. Not with standing, these individual participation levels, the overall faculty activity signaled growth, with all faculties listed as being the grant recipients, regardless of the level of their individual grant acquisitions. Since RS policy follows the principle of equality in grant support to all faculties, regardless of their respective interests and disciplinary streams, it becomes the faculties prerogative to avail the RS grant support, resources and facilities to enhance and complement their scientific strengths by being active participants and partners in elevating the status and standard of KU research. It is with these aspirations and hope, RS, on its part, is committed to acquiring international credibility of KU research through the parameters of *quality, distinction* and *excellence*, as being the key drivers in bolstering institutional research to global dimensions. A spirited move in this direction has already begun…!

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