March/April 2013 Highlights

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In continuity of its annual scientific posters event, the Research Sector organized year 2012/13 Posters Day for the scientific faculties, unveiling the latest developments in institutional research at Kuwait University, as reflected in the scientific accomplishments of the 4-faculty core group that included the faculties of Engineering & Petroleum, Science, Women’s college, as well as the newly established Computing Sciences & Engineering faculty. The event’s inaugural honors were attributed to Prof. Abdullatif Al-Bader, Kuwait University President, who ceremonially opened the event, evincing deep interest in the scientific works displayed, while encouraging researchers to explore newer, uncharted areas of research, and aspire for higher levels of distinction in their respective scientific domains. The event, hosted by the Vice President for Research, Prof. Hasan Al-Sanad, was held on March 18, 2013, amidst an impressive gathering of Vice Presidents, Assts Vice Presidents, faculty Deans, Vice Deans, executives, faculty members, and researchers, exhibiting interest in the scientific research on display, and wide-ranging themes currently being researched across the scientific faculties.

Indeed, the Posters event’s prime objective is to bolster the spirit of scientific collaboration among faculties, with shared interests developing into joint and interdisciplinary research ventures. RS believes that such interactions are vital for energizing the institutional research process, and encouraging faculties to pursue dominant scientific and social problems in search for practical solutions. This strategy dominates RS current policy of advocating joint and collaborative

Scientific Posters Document, 2013

The event’s key participants were the faculty members, teaching assistants and graduate students, joining hands in the cumulative display of 53 posters, distributed over the faculties of Engineering & Petroleum (13), Science (34), Women's College (5) and the new Computing Sciences & Engineering faculty, making its debut with one poster, and registering its participation and presence on the poster's platform, alongside the other scientific faculties, with viewers, reviewers and participants having access to a wider, more representative canvas of scientific faculties’ creative outputs. Such events inevitably simulate an interactive environment for knowledge-sharing, scientific interaction and exchange, providing nurturing grounds for new ideas to develop, and new ventures to evolve through deliberations, discussions and shared interests.

(Contd. P39... )
Under the patronage of Kuwait University President, Prof. Abdullatif Al-Bader, the Research Sector hosted its annual Scientific Poster Day event for Humanities and Social Sciences faculties for the academic year 2012/13, on Sunday, 10/3/2013, amidst a gathering of top executives, faculty members, researchers, participants and viewers. The event held at the Sports Hall, faculty of Arts, Keifan campus, drew a mixed and representative academic, scientific, administrative and students community, exhibiting interest in the latest scientific research accomplishments of the faculties of Arts, Business Administration, Education, Law, Sharia & Islamic Studies, and Social Sciences, with 35 posters defining the range and diversity of scientific themes, researched across the humanities sector. The displayed posters, by-and-large were built around research themes that focused on contemporary issues and complexities of human life, society and mankind, as envisioned and conceptualized by researchers, and clearly presented in their posters.

The event, inaugurated by Prof. Hasan Al-Sanad, Vice President for Research, gathered esteem with the KU President, Prof. Abdullatif Al-Bader, later joining the occasion, and sharing his thoughts and appreciation at the commendable efforts of the faculty researchers and graduate students, encouraging them for reaching out and acquiring higher levels of innovation and quality in their scientific endeavors. Sharing these views, the Vice President, said that RS doors are always open for facilitating researchers in realizing their research objectives and ambitions, and the scientific posters event would remain an enduring platform and opportunity for researchers in spreading the seeds of scientific innovation and high quality research, through the display of their latest accomplishments, while attracting all those nurturing similar interests, ideology and thoughts to come together in the joint pursuit of present day concerns, realities and complexities of science and society.

The event was held in the presence of Assts. Vice Presidents for Research, Prof. Nejib Smäoui and Prof. Obaid Al-Otaibi, and amidst a gathering of Deans, Vice Deans, faculty members, researchers, students and a number of attendees from concerned faculties. The event’s key participants were the faculty members, teaching assistants and graduate studies students from the faculties of Arts (9), Business Administration (4), Education (6), Law (1), Sharia & Islamic Studies (9), and Social Sciences (6), collectively placing their respective research activity and accomplishments on the posters platform for scientific exposure, critical appraisal, and public viewing.

Essentially, RS is driven towards promoting the culture of scientific openness, interaction, and exchange, among...
In furthering its policy of enhancing effective partnerships with external institutions for research collaboration, Kuwait University Research Sector, restrengthened its longstanding partnership with Kuwait Foundation for the Advancement of Sciences (KFAS) by signing and formalizing joint agreement on February 20, 2013, setting the basis for establishing the “Unrelated Stem Cell Program and Cord Blood Registry in Kuwait.” The strategic signing event was ceremonially endorsed under the patronage of Prof. Abdullatif Al-Bader, President, Kuwait University, with the signatories Prof. Hasan Al-Sanad, Vice President for Research, and Dr. Adnan Shihab-Eldin, Director General, KFAS, formalizing the research collaboration pact. Laying the path for developing the Unrelated Stem Cell Registry, an area critically depending upon finding and matching potential donors outside the patient's family, the reason why some patients are unable to benefit from stem cell transplant, due to non-availability of matching-donors from outside.

Speaking on the occasion, Prof. Al-Bader congratulated the collaborators and the research team in venturing into hitherto non-existing research area of direct significance and implications to Kuwait and the society, and enhancing the State’s capabilities in stem cell treatment regimens, patient care and health services delivery. The results of the stem cell project would thereof be of immense interest to Kuwait University, in setting a basis for stem cell research, and donor resource for patients needing transplant. Commending KFAS in sponsoring the project, and the research team in taking this strategic initiative, Prof. Hasan, underlined the importance of the project for the Research Sector, as a profound beginning in setting the path for transporting the benefits of research in patient care and in the service of society, a mission that RS is committed to enhance, expand and develop. The formalization of this agreement adds a significant dimension to RS endeavors in carrying forward the collaborative process for advancing research of human benefit, and stem cell research was a strategic step in that direction in view of its profound implications to Kuwait and the society.

Underlining the significance of stem cell research, Dr. Adnan considered it an important beginning for KFAS as being part of its strategy of promoting scientific research following the collaborative path in the larger interest of the State and society. Given this purpose, the stem cell project falls within the scope of KFAS developmental priorities for supporting and sustaining research programs that are enduring and hold potential human value.

Elaborating on the project, Dr. Salem Al-Shammeri, Principal Investigator (PI) of the stem cell registry, said that the research draws its significance from the existing reality that as many as 50-60% patients in western countries do not have proper donor within their family.
Kuwait University signed a long term collaboration agreement with world-leading nanotechnology research centre, imec (Belgium), for research and development on innovative silicon solar cell technologies. The ceremonial signing of agreement was formalized on December 19, 2012, at Kuwait University (KU), amidst the distinguished presence of the Belgian Minister of Foreign Affairs and Foreign Trade Deputy-Prime Minister, Didier Reynders, Kuwait University President, Prof. Abdullatif Al-Bader, and Director General of Kuwait Foundation for Advancement of Sciences (KFAS), Dr. Adran Shihab-Eldin.

The basis of KU-imec collaboration is imec’s wafer-based silicon solar cell industrial affiliation program. By joining this program Kuwait University will acquire, and further build up knowledge and expertise in advanced silicon solar cell processing technology. The agreement would involve Kuwait University researchers to closely collaborate with imec researchers, at imec’s facilities in Leuven, Belgium, and in Kuwait, and effectively contribute to the research program with their excellent technology-modeling and simulation expertise. On its part, Kuwait University would provide in-depth scientific understanding in exploring and validating directions for further solar cell innovation toward higher efficiencies and lower cost. Additionally, imec scientists would organize training sessions and scientific seminars in Kuwait for Kuwait University students and researchers, to stimulate growth in expertise and human capital in the fields of solar cells and renewable energy in Kuwait.

Speaking on the occasion, Ludo Deferm, Executive Vice-President Business Development at imec said, “The need and importance of renewable energy is dominantly present in the Middle East region. With this collaboration we feel that Kuwait is taking a new and strategic step in establishing a key position in the field of silicon solar cell technology in the region.” Continuing further, he said that “We are very pleased to welcome Kuwait University as one of our research partners. It is a confirmation of imec’s high level of expertise and leading position in advance solar technologies and it is a nice example of the important value that imec can bring to the Middle-east region.”

Elaborating on the KU-imec collaboration in the sphere of solar cell technology, Prof. Hasan Al-Sanad, Vice President for Research, said, “Kuwait University is driven towards creating an enabling environment that could spur scientific research in the field of silicon solar cells in Kuwait, enhancing institutional capabilities and competence in this field. The intent is to open the door for scientific exchange, knowledge-sharing and skills acquisition through training and practical exposure that could benefit our faculty and scholars, to innovate, and gather in-depth knowledge and capability in the field”. The collaboration with imec is, therefore, “a defining step in this direction, an agreement opening the door for advanced research in the critical area of solar cell technology, with its long-term implications for the state, society and the region.” Continuing further, Dr. Hasan said that “the joint agreement marked the beginning of a journey, a valued partnership for advancing institutional R&D capabilities, and bolstering KU’s scientific standing in the field.”

As regards imec, it performs world-leading research in nanoelectronics and photovoltaics, leveraging its scientific knowledge with the innovative power of its global partnerships in ICT, healthcare and energy. Imec delivers industry-relevant technology solutions, in a unique high-tech environment, with its international top talent committed to providing the building blocks for a better life in a sustainable society. Imec is headquartered in Leuven, Belgium, and has offices in Belgium, the Netherlands, Taiwan, US, China, India and Japan. Its staff of close to 2,000 people includes more than 600 industrial residents and guest researchers. Imec is a registered trademark for the activities of IMEC International (a legal entity set up under Belgian law as a “stichting van openbaar nut”). In 2011, imec’s revenue (P&L) was about 300 million euro. For the interested readership, further information on imec could be accessed at www.imec.be.
Six new recipients of US registered patents join the growing list of distinguished researchers for their advanced and innovative research

KU researchers breakthrough discoveries achieve international recognition and acclaim

The Research Sector (RS) sustained efforts in encouraging faculties to **innovate, probe, and discover**, is increasingly creating new dimensions in faculty research, nurturing a new breed of young researchers, whose efforts are leading to breakthrough findings in generating products of *scientific innovation and invention*. The latest accomplishments are attributable to a group of Kuwait University (KU) researchers and engineers for having achieved **six new US registered Patents** for their distinguished research that gained international recognition and acclaim. These inventions, apart from reflecting on the quality of research at KU, effectively demonstrate how the faculties creative potential is providing legitimate grounds for *value-added research*, and is instrumental in diverting world attention to faculties caliber and competence. The winning of six new patents within the span of nine months *(April to Dec. 2012)* truly reflects a growing tide of scientific *ambition* and opportunity driving faculties to explore and invent, and the effectiveness of RS policy in improving and elevating the standard of faculty research to international levels of credibility.

The new patents recipients belong to the faculties of Medicine, Pharmacy, Engineering & Petroleum, and Education, whose scientific efforts enabled them to transform their new ideas into tangible outputs, through collective and individual research efforts. The winners include a team of five engineers - Sara Abdulrahman Al-Hadhoud, Reem Al-Oufan, Hessa Saeed Al-Ajeel, Mona Ahmed & Rehab Al-Naki, from the Faculty of Engineering & Petroleum, who collectively won US Patent No: (US 8,157,159 B2 dated April 17, 2012) for their scientific invention, *“Flipping trash can,”* especially adapted for use in fast-food restaurants. The device includes a pedal operated spring-based lid for trash disposal, moving empty tray to a storage area for retrieval and reuse. The second patent has been awarded to Dr. Ali Ashour Al-Jafar, from the Faculty of education, who won US patent No. (US 8,238,200 B2 dated Aug. 7, 2012) for discovering a novel *timepiece* that could be programmed

**New Patent Recipients**


   Patent awarded for following invention *“Flipping trash can”*

   (Patent No.: US 8,157,159 B2 dated April 17, 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...”*


   Patent awarded for following invention *“Can Crusher”*

Six new recipients of US registered patents

Four new recipients of US registered patents for facilitating multiplication, based on his research entitled, “Timepiece with multiplication Table Display and Method of Teaching Multiplication Tables.” The third Patent has been awarded to a team of four engineers - Hanan Al-Awadhi, Mohammed Al-Essa, Ahmed Al-Jama’an & Abdulwahab Al-Qabandi, from Engineering & Petroleum faculty, for inventing “Can Crusher,” a device that crushes aluminum and steel cans, for which they won US registered Patent No: (US 8,307,763 B2 dated Nov 13, 2012). The fourth patent was awarded to Dr. Fatma Marzouq Al-Saeedi, from the Faculty of Medicine, for her breakthrough research on “Method of treating Type 1 diabetes,” having discovered the treatment method for type 1 diabetes for which she won US Patent No: (US 8,314,080 B2 dated Nov 20, 2012). The treatment involves administering a therapeutically effective dosage of choline to diabetic patients, and controlling their lipid profile.

The fifth patent was awarded to Prof. Charles Ezeamuzie & Dr. Ivan Edafiogho, from the faculty of Pharmacy, whose joint research on “Enhydrazone esters for treating asthma, allergy and inflammation,” led to their winning Patent No: (US 8,324,422 B2 dated Dec 4, 2012), relating to the use of two cyclohexenone derivatives and pharmaceutically acceptable salts thereof in the treatment of asthma, allergies and inflammation. The sixth patent recipient, Dr. Tareq Abduljalil Al-Bahri, belongs to the Faculty of Engineering & Petroleum, whose research on “Apparatus and method for measuring the properties of petroleum fractions and pure hydrocarbon liquids by light refraction,” won him the US registered Patent No: (US 8,332,162 B2 dated Dec 11, 2012), for discovering a method and apparatus to accurately measure and display various properties of hydrocarbons and petroleum factions for a small volume of sample, in a short period of time in one test, with less cost and energy for analysis by using the light refraction method.

The significance of these patentable findings is attributable to new knowledge, techniques, and devices generated through research, enhancing the domain of scientific applications, and providing practical solutions to technological, health and related concerns. These accomplishments, apart from reflecting faculties creative potentialities, are indicative of RS consistent efforts towards encouraging researchers to capitalize on their creativity and caliber, as a viable move towards discovering new methods and products that hold economic potential, and gain international recognition and licensing. It is with these aspirations, KU deeply appreciates and genuinely applauds the commendable efforts of all patent winners, encouraging them to carry forward their efforts in achieving greater recognition, international visibility and excellence. Listed below are the names of new patent recipients, and their invention:

**Patent Recipients**

4. **Dr. Fatma M. Al-Saeedi, Nuclear Medicine Department, Faculty of Medicine**
   
   Patent awarded for following invention
   
   “Method of treating Type 1 diabetes”
   

5. **Prof. Charles Ezeamuzie & Dr. Ivan Edafiogho, Faculty of Pharmacy**
   
   Patent awarded for following invention
   
   “Enhydrazone esters for treating asthma, allergy and inflammation”
   
   (Patent No.: US 8,324,422 B2 dated December 4, 2012)

6. **Dr. Tareq Abduljalil Al-Bahri, Chemical Engineering Department, Faculty of Engineering & Petroleum**

   Patent awarded for following invention
   
   “Apparatus and method for measuring the properties of petroleum fractions and pure hydrocarbon liquids by light refraction”
   
In a significant move, Kuwait University (KU) and Kuwait National Petroleum Company (KNPC) entered into strategic partnership with the ceremonial signing of an agreement, setting the basis for cooperation in the sphere of Research and Development (R&D) between the signatories, KU Research Sector and KNPC. The event was formalized amidst the distinguished presence and participation of KU President Prof. Abdullatif Al-Bader, KPC Executive Manager, Eng. Farouq Al-Zanki, Prof. Hasan Al-Sanad, Vice President for Research, KU, Eng. Fahad Salem Al-Ajmi, Board Chairman & Managing Director, KNPC, and Eng. Nabeel Bu-resli, Managing Director for Administration and R & D, KNPC, and held on April 11, 2013, at the Chairmen’s Club Meeting Hall, KNPC premises, bringing together top authorities from both sides, including KNPC Research & Technology Director, Dr. Suad Al-Radwan, and KU Vice Presidents, Asst. Vice Presidents, Faculty Deans, Vice Deans, as well as Asst. Managing Directors, KNPC.

The high profile event was accomplished in an energetic and inspiring environment, with Prof. Hasan Al-Sanad (KU), and Eng. Fahad Salem Al-Ajmi (KNPC), signing the agreement, opening the door for scientific collaboration and joint studies between KU and KNPC. The event was preceded by intense preparatory phase, involving coordinated efforts of Prof. Haitham Lababidi, Asst. Vice President for Research (KU), and Dr. Suad Al-Radwan (KNPC), for giving the agreement its final form and shape. Underlining the importance of the ceremonial occasion, Eng. Fahad Al-Ajmi, accorded a warm welcome to the distinguished gathering, expressing his pleasure and pride at the event’s significance and implications in reinforcing the long and binding tradition between KU and KNPC in the sphere of research collaboration, and for having accomplished several technical studies concerning the oil sector. These studies provided ample evidence of the coordinated efforts between the two sides in generating findings of potential benefit to KNPC, having a positive impact on developing and improving the company’s diverse manufacturing processes. Continuing further, Eng. Fahad attributed the fruitful maturation of such studies providing the legitimate grounds for the agreement, including the sustained efforts of KNPC’s Research & Technology department, and KU’s Research Sector (RS), involving the two sides in an enduring quest for the partnership process to evolve into practical reality, laying the basis for collabor-
KU-KNPC agreement ...(From P.8)

Recalling Kuwait University's legacy for the sustenance and development of research, KU President, Prof. Al-Bader, drew attention to the pivotal role of scientific research in spearheading advancement, and its strategic significance in expediting development. This process significantly involves the input of national institutions, playing a crucial role in supporting scientific research, and encouraging indigenous studies of direct relevance to KNPC and its subsidiaries in the oil sector. Such studies hold critical significance and value in the contemporary context, with the area offering immense opportunities for greater involvement and participation of national institutions in redressing as yet unexplored areas that are scientifically challenging, and require collective participation, in search for feasible and practical solutions. Prof. Al-Bader, also took pride in mentioning that KU was on the threshold of its historic 50 years journey of sustained growth and development, strengthening the institutional scientific foundations, and covering significant milestones in developing graduate and scientific programs, as a continuous movement of growth, human capital and scientific excellence. These valued assets are the key institutional imperatives, that would gather further steam through this collaboration, motivating researchers to invest their scientific potential and energies in joint pursuit of studies, relevant to the oil sector and related fields, with the collaborative agreement marking an important step in that direction. Prof. Al-Bader also hoped for similar agreements and understandings to evolve with the health and other sectors.

Thereafter, Dr. Suad Al-Radwan, KNPC's Research & Technology Director, presented a summarized view of the company's organization and functions, highlighting the current processes, operations and activities in the refineries, and the company's strategic plans for the future.

Sharing his experiences of seven valuable years spent at KNPC as a member of the Board of Directors, Prof. Hasan Al-Sanad, KU Vice President for Research, pointed out the importance of highly qualified and competent staff working in the company's various facilities and sectors, handling sensitive operations, often involving safety concerns, and effectively contributing in the development of the oil industry. Such human resource, working at KPC’s subsidiaries, are the vital assets, whose expertise and experience is important in the company’s activities. In addition, the collaborative agreement has the advantage of bringing together KU enormous research caliber, which together with company’s specialized personnel, working closer to the production and refinery sites, would go a long way in developing the oil industry, and serving national needs and society. He also believed that the agreement may lead to opening fresh doors for further collaboration in the field of scientific research, which could prove mutually beneficial to both sides, considering that KU has already successfully implemented several projects in joint partnership with several local companies.

A presentation on KU Research Sector then followed, with Prof. Haitham Lababidi, KU Asst. Vice President for Research, outlining RS strategy, efforts and achievements in the sphere of scientific research at KU, within the framework of research support system, infrastructural assets, institutional research strengths, and priority research areas, providing nurturing grounds for scientific collaboration and joint studies in partnership with external institutions, invariably leading to new findings and scientific discoveries. It is within this conceptual framework that RS is steadily moving in the direction of transforming its strengths into potential areas of scientific innovation, collaboration and spinoffs, with the establishment of Research Park at KU’s Sabah Al-Salem University City complex. This mission would undoubtedly require inter-institutional alliances and partnerships, and KU certainly foresees an effective partnership with KNPC.

(Contd. P.12...)
In a key initiative, the Research Sector organized a seminar, addressing the vital issue of “Publication in scientific refereed journals in the Arab World countries,” for promoting the culture of high quality research outputs, published in international refereed journals of impact, for the benefit of the scientific community. The seminar, held under the patronage and presence of Kuwait University President, Prof. Abdullatif Al-Bader, was hosted by the Office of the Vice President for Research, and attracted the attendance of diverse and distinguished community of KU’s top executives, including the Vice Presidents, Secretary General, Asst. Vice Presidents, Deans and Vice Deans of Humanities and Social Sciences faculties, the Heads of Promotion Committees of humanities faculties, Academic Publication Council, and Heads of Editorial Board of scientific journals, as well as 25 guests from the GCC and Arab World countries. The 2-day seminar was held on Tuesday and Wednesday, Dec. 18-19, 2012, at Marina Hotel, Salmiya, and was the venue of a huge gathering of faculty, researchers and scholars from the humanities and scientific fields.

The seminar’s inaugural was preceded with Kuwait’s national anthem, followed by the reciting of Holy Quran, and the event’s ceremonial opening began with Prof. Abdullatif Al-Bader, KU President, inaugurating the seminar and welcoming the participating guests to Kuwait, their second home country, thanking them for their efforts to participate in the seminar on “Publication in the Scientific refereed Journals in the Arab World.” Prof. Al-Bader, emphasized the significance of such scientific events, as key platforms for invigorating dialogue, exchange of scientific thoughts, knowledge and experiences, encouraging the participants to enhance their efforts and energies in their onward journey to greater scientific progress, accomplishments and distinction. The President also thanked the Office of Vice President for Research, especially Prof. Hasan Al-Sanad, as well as the support and encouragement provided by the Kuwait Foundation for the Advancement of Sciences.

Speaking on the occasion, Prof. Hasan said that today’s seminar addresses a vital concern, focused on “Scientific Publication in Scientific refereed journals in the Arab World Universities,” organized by the Research Sector, and the Academic Publications Council, the basis for which evolved from an idea, gradually developing into a scientific project, as you can all see today. KU, as all Arab World universities, recognize the significance of this issue, as to how efficient and reliable are the scientific journals and their standard, serving as strategic channels for publication in our universities, and on which depends the scientific value of what is published in these journals.

RS is taking determined steps towards having our Arabic scientific journals included in such distinguished international databases such as the ISI Web of Knowledge, based on compatible quality standards and impact factor, as per International scientific refereed journals. It is precisely to achieve this purpose that KU organized this seminar, primarily addressing the following key issues:

1. Setting unified standards for ways and mechanism of refereeing scientific journals, with specific reference to the experiences of Arabic journals in some of the Arab World Universities.

(Contd. P.11...)
2. Developing standards for Arabic periodicals that are similar to international databases, like the ISI Web of Knowledge.

3. Sharing and exchange of experiences, as well as identifying names of distinguished referees from the database, as also for consultative bodies for journals.

The seminar also provided the strategic forum for outlining KU’s Research Sector’s profile, which was established in 1979 to:

1. Develop scientific research at Kuwait University
2. Advance faculties creative potentials in the ultimate pursuit of excellence.
3. Invest research outputs for the benefit of science, society and mankind.

For achieving this purpose, RS encourages faculties to pursue high quality research through original proposals, grants for which are provided under nine distinct categories.

Concluding the seminar, Prof. Hasan said, “I take this opportunity to thank Prof. Abdullatif Al-Bader, KU President, for his patronage of this seminar; I would also like to thank KFAS for the support rendered to this seminar, and thank all the guests, who attended the seminar, despite the tribulations of travel and fatigue, to help achieve the intended goals of this seminar”. Finally, “I would like to thank the higher supervisory committee for developing this concept, and rendering continuous support in the actualization of this seminar, and I do hope this support would continue and grow’. “I also thank all the committees whose efforts led to the accomplishment of this event, setting the basis and pace for developing and raising the effectiveness and efficiency of our scientific refereed journals in KU and the Arab World Universities. With these words, I wish you all the best, and hope for achieving our desired purpose through enhanced communication between the Arab World universities for expediting development”.

Following the seminar sessions, the participants were taken on a tour of Kuwait’s landmarks, as well as the dinner arranged by RS for the guests, during which the participants were honored, and photos taken. The seminar ended on a positive note of continuing scientific research collaboration between KU and other Universities.

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Concluding the seminar, Prof. Hasan said, “I take this opportunity to thank Prof. Abdullatif Al-Bader, KU President, for his patronage of this seminar; I would also like to thank KFAS for the support rendered to this seminar, and thank all the guests, who attended the seminar, despite the tribulations of travel and fatigue, to help achieve the intended goals of this seminar”. Finally, “I would like to thank the higher supervisory committee for developing this concept, and rendering continuous support in the actualization of this seminar, and I do hope this support would continue and grow’. "I also thank all the committees whose efforts led to the accomplishment of this event, setting the basis and pace for developing and raising the effectiveness and efficiency of our scientific refereed journals in KU and the Arab World Universities. With these words, I wish you all the best, and hope for achieving our desired purpose through enhanced communication between the Arab World universities for expediting development”.

Following the seminar sessions, the participants were taken on a tour of Kuwait’s landmarks, as well as the dinner arranged by RS for the guests, during which the participants were honored, and photos taken. The seminar ended on a positive note of continuing scientific research collaboration between KU and other Universities.

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3. Sharing and exchange of experiences, as well as identifying names of distinguished referees from the database, as also for consultative bodies for journals.

The seminar also provided the strategic forum for outlining KU’s Research Sector’s profile, which was established in 1979 to:

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The Research Sector hosted a lecture on “Knowledge Management and Transfer of Technology to Kuwait University,” delivered by visiting delegate, Prof. Allam Ahmed, Director, Middle Eastern Knowledge Economy Institute, Brighton Business Institute, University of Brighton, UK, with a key focus on managing knowledge for sustainable development in Arab countries. The lecture was held amidst the presence of Assts. Vice President for Research, Prof. Haitham Lababidi, Prof. Nejib Smaoui, and Prof. Obaid Al-Otaibi, and several attendees exhibiting interest in the dynamics of knowledge, and its transmission for developing a knowledge-based economy.

Preceding the lecture, Dr. Hanadi Mubarak Al-Mubarak, from the Dept. of Civil Engineering, Faculty of Engineering & Petroleum, Kuwait University, briefly introduced the key speaker, highlighting his distinguished accomplishments and international positions in such elite institutes as United Nations, International Bank, European Commission and Advisor & Director, Knowledge Management, Municipal Affairs, Abu Dhabi, among others.

Prof. Allam then outlined the significant dimensions of the themed lecture on knowledge, defining its scope and substance that was as challenging, as it was scientifically significant in a knowledge-based society.

Referring to the UN Millennium Developmental goals, he underlined the significance and implications of establishing the knowledge management culture in an institutional setting, and overseeing the diffusion and exchange of knowledge for scientific, institutional, administrative and personal development. Expressing the dire need for a knowledge culture in the Arab World, he suggested the setting of a roadmap for developing academic and scientific knowledge for sustainable development in the Arab countries, and felt Kuwait University to be the ideal hub for initiating this venture.

The seminar was held on February 17, 2013, at 10 am., at the Administration Building (119), Khaldiya Campus, Kuwait University, and culminated with a question/answer round.
RS developmental strategy is progressively inclined to continuous evolution in the basic foundation of research at Kuwait University, inducing efficiency and demonstrating effectiveness of the grant support system, through new procedures and priorities, in response to emerging requirements of e-culture in RS grant support system. RS switch-over to electronic application from September 2012, provided the basis for valid reformations in the existing Project Processing Plans, both for projects up to KD 4000/-, and above KD 4000/-, streamlining the workflow and processing transactions between RS and faculties. In addition, the new workflow is tailor-made to the demands of online refereeing of proposals, overcoming assessment delays inadvertently caused by mailing of proposals to referees. The whole exercise is aimed at time-efficiency, speedier assessment and rapid grant approvals, giving top priority to research and researchers.

The newly generated workflow, explicitly outlines the planned movement of documents, starting from project submission to processing, evaluation and approval, with the proposal passing through several intervening steps to reach the decision-making stage of grant approval. Both processing plans have been test-tried, to ensure their effectiveness in overseeing electronic transactions between RS, faculties and referees, and also demonstrated to all VDRs at the recently held Funding Committee Meeting on April 3, 2013, for their information and update on newly devised workflow plans for project processing, in view of the electronic submission of proposals, as well as RS readiness in moving beyond the e-application phase to the domain of electronic refereeing of proposals to expedite project evaluation and assessment report. The whole exercise is aimed at gradual enhancement of e-mode in RS grant support system, making the system versatile and virtual, for accelerating the decision-making process, shortening the processing and assessment time, for speedier grant approvals. The new processing plans have already been distributed to faculty VDRs, with the processing blueprint providing explicit view of the steps and stages of proposal movement, and

### Workflow for Processing Research Proposals with Budget Up to KD 4000

**Plan 1**

- **PI** submits proposal online to RS
  - Is proposal complete?
  - RS assigns code & forwards proposal to VDR
  - RS selects referee
  - VDR selects referee and sends his/her details to RS
  - RS sends proposal electronically to referee
  - RS sends Referee’s report to PI through VDR
  - VDR forwards PP’s response and modified proposal to RS
  - RS Implementation Committee for approval

**Start of Grant Implementation**
- Grant contract to RS
- Copy to VDR
- Grant contract to PI for signature
- Grant issued by VPR

**DC** Department Chairman
**FRC** Faculty Research Committee
**DRC** Department Research Committee
Visco-elastic Properties of Chitosan-titania Nano-composites
Fakhreia Al-Sagheer and Shegufa Merchant

Bio-nano-hybrid materials are part of an interdisciplinary field between Life Sciences, Material Sciences, and Nanotechnology. Recently these have gained importance in areas such as biosensors, structural materials, catalysts, separation methods, and regenerative medicine. Chitosan is a biopolymer derivative of chitin, a polysaccharide found abundantly in nature in crustacean exoskeletons of crab, shrimp, and lobster as well as in cuttlebone of cuttlefish. It is a linear chain of linked 2-acetoamido-2 deoxy-β-D-glycopyranose units. Chitosan possesses unique functional and biomedical properties. It is biodegradable, biocompatible, nontoxic, heat resistant and is easily accessible by recovering from marine waste. It is especially attractive due to its film forming characteristic and finds multiple uses in applications such as coatings, drug delivery, nutrients, controlled release of food ingredients, separation techniques, optical material, and so forth.

Organic/inorganic hybrids exhibit characteristics of both organic polymers and ceramics. These are easily produced through sol-gel chemistry which is a very versatile method allowing incorporation of inorganic component like metal alkox-
ZnO is a semiconductor with direct band gap of 3.37 eV at room temperature (RT) and other interesting properties, suitable for a wide range of applications. Its large exciton binding energy (60 meV) makes ZnO an efficient material for RT light emitting and lasing devices in the ultraviolet (UV) and visible (defect-related emission) range. ZnO with both n-type and p-type conductivity can be prepared. However, p-type doping is not as easy and stable as for n-type doping. Due to this, fewer reports are available on homojunction-based light emitting diodes (LED) than heterojunctions formed from n-ZnO and other p-type semiconductors or polymers. Fabrication of silicon-based optoelectronic devices is of great importance due to the well-developed Si technology and its potential for device integration. The majority of p-Si/n-ZnO devices reported in the literature use ZnO films grown by sophisticated vapor-phase techniques. Electrodeposition is a simple, cost effective and scalable technique which has not been explored adequately for the fabrication of p-Si/n-ZnO LEDs.

In this study, ZnO films were electrodeposited on the (100) plane of highly boron-doped p-Si substrates. Heterojunction devices (p-n and p-i-n) were constructed and characterized by means of current-voltage, capacitance-voltage, photocurrent spectroscopy, photoluminescence and electroluminescence measurements. Electrodeposition yielded compact films with a native donor density ~ $10^{17}$ cm$^{-3}$. Diffusion of boron from Si into ZnO, during an annealing process, formed a graded p-n junction with enhanced electroluminescence in the UV-Visible region. Devices also exhibited a reasonably good photosresponse in the UV-blue range. The absorption of sub-band gap photons in ZnO showed an Urbach tail with a characteristic energy of 115 meV. The absorption and emission of light by these devices showed the involvement of two prominent defect levels in ZnO, namely $L_1$ and $E_g$.
Cardiovascular diseases are one of the principal causes of death and disability in people with spinal cord injury (SCI). The present study was designed to investigate if acute treatment with FPTIII (an inhibitor of Ras-GTPase farnesylation) or MG132 (an inhibitor of ubiquitin proteasome pathway [UPS]) or administration of angiotensin-(1–7), also known as Ang-(1–7), (a known inhibitor of cardiac NF-kB) would be cardioprotective. The weight drop technique produced a consistent contusive injury of the spinal cord at the T13 segment. Hearts were isolated from rats either 6 months (SCI-6) or 12 months (SCI-12) after SCI. Hearts were perfused for 30 min. and then subjected to 30 min ischemia followed by 30 min reperfusion (I/R). Recovery of cardiac function after I/R was measured as left ventricular developed pressure (Pmax) and coronary flow (CF). Drugs were given during perfusion before hearts were exposed to ischemia and reperfusion. Percent recovery (%R) in Pmax and CF in hearts from control animals were 48 – 6 and 50 – 5, respectively, whereas none of the hearts from animals with SCI recovered after 30 min of ischemia. Treatment with FPTIII, MG132, or Ang-(1–7) before ischemia for 30 min led to significant recovery of heart function following ischemia in SCI-6 but not in SCI-12 animals. Thus, we have shown that acute treatments with FPTIII, MG132, or Ang-(1–7) improve cardiac recovery following ischemic insult in animals with SCI and may represent novel therapeutic agents for preventing ischemia-induced cardiac dysfunction in patients with SCI.
Utility of Gabriel approach for synthesis of heterocyclic amines as intermediates in synthesis of dyes using microwave as environmentally clean route

Dr. Saleh Al-Mousawi
Dept. of Chemistry, Faculty of Science
(Final Report of Project No SC05/06)

The Introduction:

Our work is vastly related to the area of synthetic organic chemistry with the emphasis on developing green methodologies for the synthesis of potential dyes and dye intermediates. We are also interested in preparing new starting materials for pharmaceutical utilities.

As the number of industries increases in the world, the public awareness for environmentally clean methodologies has also increased. This led chemical industries to reconsider their methodologies and look for eco-friendly and more economical chemical procedures. Such public awareness impact has led to the birth of a new field of chemistry called green chemistry, which is now well marketed in the society and well considered in the scientific arena.

We, with the great effort of professor El-Nagdi, became interested in the introduction of the microwave heating technology.

This technology has many advantages over the conventional heating method. It takes considerably less time, remarkably increases the yield of the product, gives cleaner results, and it can be applied on both solid or liquid materials with or without using solvents. This has encouraged us and many industries to implement this technique. It is considered as one of the eco-friendly methodologies for chemical reactions.

Microwave radiation provides energy in the form of highly energetic impulses of microwave radiation. It forces the molecules to collide with each other and ultimately initiates chemical reactions.

Major results:

Using this technique our team has developed many new chemical methods which have successfully led to the synthesis of some pharmaceutically important compounds such as 4-aminopyrazole, which is an important intermediate for the preparation of Viagra.

We also were able to obtain colored compounds having arylazopyridazine chemical structure. A more promising result was obtained when we lately prepared arylazonicotinates as possible future dyes.

We also prepared diaminopyrazoles as dyes for coloring fabrics, hair and fur.

These aminopyrazoles can substitute, the potentially allergic and possibly carcinogenic hair dye, p-phenylene diamine, which is used by hair dying manufactures.

From our microwave instrument we have published more than fifteen articles, three of which are on cool-mate microwave, completed three M. Sc. and two Ph. D. thesis. Moreover, and as a result of introduction of this important techniques, we encouraged many colleagues to implement this technique. We also brought this technique to the public attention by explaining it to many secondary school students during their preparation of their regional small projects.

To our delight, recently the research management unit RS has approved our project entitled: “Synthesis and characterization of new functionally substituted potential dyes for high technology applications”. Such applications opens another area for research in our department.

Importance:

The importance of green chemistry technology is becoming increasingly accepted worldwide since it has furnished the industry with a platform for an economically important and environmentally clean field of technology. Amazingly it reduces the reaction time, from hours to minutes or even seconds.

Practically our team has been able to conduct many chemical reactions in a very short period of time and, therefore, has increased our research productivity.
Globalizing KU’s scientific developments a long-lasting goal

RS publications grounded in strategic information, aggregated, analyzed & preserved in key documents to keep the scientific community informed and updated on latest research developments at Kuwait University

OVPR’s publications an essential via media for wide exposure of institutional scientific developments & accomplishments

The Research Sector’s (RS) publications are fundamentally rooted in institutional research policy, programs, and priorities, including the system of grant awards, procedures and mechanism for the sustenance of high quality research at Kuwait University. The principles that sustain this system are grounded in strategic information, the substance that forms the core of RS publications, which must be aggregated, analyzed and assembled in various forms and formats for extensive dispersal and relay. Given this purpose, the publications program forms an integral part of RS policy, ensuring organized transmission of strategic information to the faculty research community, as well as its preservation and exposure to sensitize the global readership on the dynamics of institutional research, and opportunities available for scientific collaboration, exchange and tie-ups.

This objective is essentially met through the rapid generation of key documents, as an essential via-media to keep the researchers, experts, policy-makers and wide readership informed and updated on new measures adopted, programs instituted, facilities provided and services improved in the larger interest of making the research support system more friendly and flexible for faculties, and more attractive for developing new linkages and partnerships for joint and collaborative research.

The publications domain, therefore, is an intensely dynamic sphere, involved in the rapid generation of a series of documents conveying essential information to the faculty research community, as well as overseeing its wide dispersal for global outreach and public awareness. It is within this functional frame, RS publications program consistently and constantly follows the principle of pre-defined agenda, based on RS annual requirements, adhering to year-round timeline for document delivery, yet rapid developmental pace, research advancement, and emerging scientific realities, necessitate policy-evolvement, creating additional sources of information, that must be documented and dispersed, stretching the publications activity beyond the pre-stated documents, with the inclusion of new requirements, in an intensely challenging cycle of document preparation and production.

It is precisely in this context that the publications activity has remained in the sway of critical rescheduling of several documents since the onset of the academic cycle 2012/13, further intensified from December 2012 onwards, for the hugely challenging posters activity for the humanities and scientific faculties. Scheduled for March 10 & 18, 2013, the posters activity accelerated the production momentum with in-house designing of participants posters’, from submitted text for several researchers from the humanities faculties, which alongside the new assignments and annual documents, kept the production channels in top gear. RS publications domain thus continued to thrive as much on delivery of documents to faculties, as on overseeing the dissemination and display of institutional scientific developments to reach wider audience, global readership and public at large.

OVPR’s publications are, therefore, the vital information assets, that are continuously organized, analyzed and placed within the contents (Contd. P.19…)
of standard documents, highlighting new initiatives, ongoing programs and developments as the basis for the generation of a whole series of descriptive and analytical reports by OVPR’s key constituent offices – Research Sector (RS), Academic Publication Council (APC), and Center for Gulf & Arabian Peninsula Studies (CGAPS). These offices are involved in the preparation and production of a whole array of periodicals and publications for wide transmission of scientific information that must reach worldwide, presenting a progressive outlook of KU research developments for the international scientific community, and global readership. It is within the requirements of this objective frame, the latest publications released by each of these offices (RS, APC and CGAPS), from December 2012 onwards until March 2013, are listed below:

1. **Research Sector (RS) publications (December 2012 to March 2013)**

   - **OVPR Research Quarterly Newsletter, Oct./Nov. 2012 Issue** – Released in November 2012, OVPR’s Research Quarterly Newsletter highlighted major events and happenings during the period June 2012 through September 2012. The key events covered were SPSS workshop for the Humanities colleges, KU-KPC research collaboration, National seminar on climate change, SCOPUS workshop, RIG special session 2012 for new Kuwait faculty members, Korean delegation & Carbon presentation. Also featured were RS measures to prevent scholarly misuse, research reward incentives clearance and continuity, and India-Kuwait relations.

   In addition, periodic updates by way of latest OVPR publications released, statistical update on ongoing, completed and under-process projects, as also the carrying forward of the Distinguished Series – 3, provided the outlook of latest events, activities and happenings on the institutional research front. The Newsletter also covered the latest editions of scientific journals released by the Academic Publications Council (APC), as well as profiling the scientific productions of the Center for Gulf & Arabian Peninsula studies (CGAPS). For readers information, the Research Quarterly Newsletter has been widely distributed and displayed on OVPR’s website (http://www.ovpr.kuniv.edu). Published (in English and Arabic).

   - **Scientific Posters Booklets for Humanities & Scientific faculties, 2013** – Released as two documents in March 2013, the Research Sector assembled exact replicas of the posters displayed at the humanities and scientific poster day events, held on March 10, and 18, 2013, simultaneously with the hosting of two posters events. The Humanities Posters booklet, dedicated exclusively to 6-faculty humanities sector, involving the participation of faculty members, teaching assistants and graduate students from the faculties of Arts, Business Administration, Education, Law, Sharia & Islamic Studies and Social Sciences, presented a documentation of 35 posters, focused on contemporary humanities and social themes, currently being pursued or accomplished by humanities researchers. The Scientific posters booklet, provided a collective outlook of 4-faculty sciences core group, highlighting latest developments in the sphere of scientific research, largely based on ongoing and accomplished projects from the faculties of Engineering & Petroleum, Science, Women’s college, and the newly established faculty of Computer Science & Engineering.

   The scientific posters booklet documented 53 posters in image format, built around advanced and innovative research, in wide-ranging fields in the sphere of science, engineering and technology.

   Both documents, generated in-house, are intended to serve as vital information and reference resource for researchers and multi-users, and have been released to KU executives, faculties and decision-makers, as well as displayed on OVPR website. Prepared, printed & released (in English and Arabic).

   - **Sponsored Research 2010/11** – Released in December 2012. Sponsored Research 2010/11 is 20th in the series of annual documentation of faculty research activity, spanning the period September 1, 2010 to August 31, 2011. The document carries forward a legacy of scientific research at Kuwait University, aggregating faculties ongoing and accomplished research, reflecting widely divergent research interests of strategic national, regional and social significance. The document presents a total of 473 projects, of which 410 projects were being pursued by the faculties, and an additional 63 projects were waiti faculty members, Korean delegation & Carbon presentation.

(Contd. P.20... )
The entire faculty research activity has been organized into three major sections, with Section – I presenting KU sponsored projects, Section – II aggregating jointly awarded grants, and Section – III listing graduate students awards. Within the document, the projects have been organized by faculties & departments, and provide essential information on project title, research team, budget, starting date and duration, essentially reflecting the broad themes and areas actively being pursued across faculties during the academic year 2010/11. The statistical data on projects activity is appended to the document, as also the Researchers Index, facilitating cross-referencing of projects by faculty researchers. The document was released in December 2012, and posted on OVPR website for wide access and information exposure. Published (in English).

II. Academic Publication Council (APC) Publications (Dec. 2012–March 2013):

The Academic Publications Council (APC) has been quite prolific in the release of a series of new issues of several scientific journals, over the period Dec. 2012 through March 2013, the latest editions of which are as follows:

A. Registry of Current Events in the Gulf & Arabian Peninsula Region: The document monitors and registers 63 projects by graduate students. In terms of faculties research performance, as many as 281 (59.4%) projects were ongoing, and 192 (40.6%) projects had attained the completion status. As regards funding source, KU was responsible for supporting 439 (92.8%) projects, while 34 (7.2%) projects were being jointly pursued in coordination with several external institutions.

B. Scientific Posters Information Guide, 2012 – Released in December 2012, the Scientific Posters Information Guide, was prepared as two documents in English and Arabic, providing essential information on the objective of posters events, as well as conditions and guidelines for participation. The document explains the purpose of organizing the posters activity annually for humanities and scientific faculties, and specifies the event’s goals for information of faculties, teaching assistants and graduate students, to actively participate and display their research accomplishments on the posters platform in the spirit of scientific openness and information exposure. Given this purpose, the document highlights the terms and conditions for poster-participation, submission deadlines, and scheduling of events. The evaluation mechanism is also outlined for facilitating selection of best posters, under each of the awards category, instituted by RS in appreciation and recognition of distinguished research. For readers information, the scientific posters guide provides first hand information on the event’s requirements, and has been widely circulated across faculties, as well as displayed on OVPR website. Published (as 2 English and Arabic documents).

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A. Registry of Current Events in the Gulf & Arabian Peninsula Region: The document monitors and registers
**Winners of Sciences Posters event 2013**

**Category I: Faculty members**

1. **Dr. Tareq Alrefai**, Dept. of Physics, Faculty of Science
   Title of research: “Long-Lived Gamma Emitters in Incense”.

2. **Dr. Khalid Al-Fadhalah**, Abdullah Almazroue, Saleh Alhajeri & Terence G. Langdon, Dept. of Mechanical Engineering,
   Title of research: “Evolution of Microstructure and microhardness in pure copper after processing by high pressure torsion”.

3. **Dr. Saad Makhseed**, Dept. of Chemistry, Faculty of Science.
   Title of research: “Water Soluble phthalocyanine in non-aggregated form to enhance photodynamic cancer treatment”

**Category II: Teaching Assistants**

1. **Dr. Hicham H. Dib**, Dept. of Chemistry, Faculty of Science.

**Winners of Humanities & Social Sciences Posters event, 2013**

**Category I: Faculty Members**

1. **Dr. Amar Hasan Safar**, Dept. of Curriculum & Teaching Methods, Faculty of Education.
   Title of research: “The students perspective of online training @ Kuwait University.”

2. **Dr. Naif Al-Shemmari**, Dept. of Economics, Faculty of Business Administration.
   Title of research: “Foreign Direct Investment in Developing Asia According to Location Advantage Hypothesis.”

3. **Dr. Naif Al-Shemmari**, Dept. of Economics, Faculty of Business Administration.
   Title of research: “GCC Trade Potentials with EU Members.”

**Category II: Teaching Assistants**

1. **Dr. Mohammed Al-Fuzaie**, Dept. of Jurisprudence & Rules, Faculty of Sharia & Islamic Studies
   Title of research: “Legitimate censorship over cooperative insurance companies, the strengths and weaknesses.”

2. **Mr. Mohsin Al-Mualim**, Dept. of Philosophy, Faculty of Arts.
   Title of research: “The logical nature of pilgrims.”

**Category III: Graduate Students**

1. **Asma Abdullah Al-Otaibi**, Dept. of Educational Management & Planning, Faculty of Education.
   Title of research: “Perceptions of Educational Leaders at the Ministry of Education in Kuwait about Applying Education Professionalization Standard.”

2. **Hessa Abdulaziz Al-Furaih**, Faculty of Law
   Title of research: “The English judiciary’s way in interpreting the applicable law clause in the Islamic Funding Contracts.”
A high-level meeting, hosted by the Vice President for Research, Prof. Hasan Al-Sanad, and attended by Kuwait University President, Prof. Abdullatif Al-Bader, was held at the conference room of Research Sector, on Nov. 8, 2012, involving the participation of a 3-member IBM delegation, to discuss and debate on the proposed Design and Innovation Center to be established at Kuwait University as part of the KU-IBM Memorandum of Understanding (MOU), the groundwork for which is being rapidly finalized for the formalized agreement. Welcoming the delegates, Prof. Hasan expressed RS readiness in extending its full cooperation in seeing the Center taking shape through legitimate agreement reached between KU and IBM, and requested Prof. Al-Bader to share his thoughts on KU’s stand concerning this matter.

According a warm welcome to the delegates, Prof. Al-Bader said that IBM’s proposal is a significant step towards developing critical thinking among faculty members and students through scientific innovation, a culture that has a futuristic dimension, and the catalyst for advancement. “Our future is geared to the quality of teaching, and we cannot achieve depth of teaching without research. Research is, therefore, the strategic lifeline for our institution to acquire global stature on grounds of our scientific programs, progress, and accomplishments that are credible and distinguished.”

Given this outlook, Prof. Al-Bader extended institutional cordiality to IBM, with the expressed hope that the emerging KU-IBM partnership would prove successful for the depth of teaching to improve, including graduate and undergraduate teaching, which cannot be complete without postgraduate and scholarly studies. KU on its part would render all support for the success of this venture, and expected similar reciprocation from the other areas where IBM could collaborate and sustain the emerging alliance as long-term partnership, starting with the establishment of Design and Innovation Center at KU, that would eventually strengthen and acquire regional and global dimensions.”

Speaking further, Mr. Kia said that IBM had already identified some devices for the Microelectronics Center, envisioned as a massive ongoing process, with devices designed and used indigenously, and we foresee the center developing into a hub of IP and knowledge economy. The signing of KU-IBM MOU would thus be a ground breaking event, marking the advent of the joint initiative on establishing Design and Innovation Center, with the occasion deserving a big ceremonial launch.

While Prof. Al-Bader reaffirmed KU’s support to this venture, Prof. Hasan looked forward to the final proposal that would set the momentum for the MOU. Dr. Haitham Lababidi, Asst. Vice President for Research, while thanking IBM for the introductory note and the project’s objectives, gave a briefing on the preceding meetings during which the center’s concept took shape and matured into the Microelectronics Center, and laid grounds for the germination of the second proposal on Cyber Security, with a string of meetings during the span of nearly one year, starting with the first meeting with IBM on Dec. 11, 2011, including a short presentation, an agreement on Microelectronics Center, ongoing follow-ups and suggestions, eventually

(Contd. P.23...)

"Our future is geared to quality of teaching, and we cannot achieve depth of teaching without research”. Prof. Al-Bader
ally leading to the revised business plan and collaboration elements built around KU’s priorities, including Cyber Security project, together forming the agenda items for the joint KU-IBM meeting held on Nov. 8, 2012.

Taking over from there, Mr. Kia, outlined the revised Microelectronics and Design proposal, saying that “what we are proposing are the devices, sensors, and security, that would take care of the commercial aspect. IBM’s whole idea is centered on establishing the Design and Innovation Center at KU, that would set the basis for a journey forward, with the goal to deliver innovation products and solutions to the community and market them.” Continuing further, he said that “the key is to design and invest products indigenously, in Kuwait, with IBM’s prime approach being establishing a sustainable Center as a spinoff, based on joint research, with KU providing the requisite climate to create IPs together with IBM.” The mission is to develop a competent, highly skilled future Kuwaiti workforce that delivers solutions, such as smart transport, smart healthcare, smart oil & gas, and smart other areas of interest to KU. The intent is to enhance education, curriculum and university research capabilities, develop world class R & D Center, encourage innovation, find solutions, leveraging IBM and existing smart planet technologies and methodologies, and more importantly, enabling KU to create value through its scientific innovation and research.”

The select KU participants included Dr. Bader Al-Bdawi, Head, Computer Science Department, Faculty of Science, Dr. Thalaia Al-Fouzan, Computer Science Department, Faculty of Science, Dr. Sabeeh AlMukhaisim, Computer Engineering Department, Faculty of Engineering & Petroleum, and Dr. Ayed Salman, Computer Engineering Department, Faculty of Engineering & Petroleum, and Dr. Promila Sharma, Director Technical Information & Research Publications, Research Sector.

Considering the Design & Innovation Center an ambitious mission, Dr. Bader observed that for enhancing KU’s intellectual capabilities and sustaining its potential, KU - IBM partnership is essential to spur collaboration innovation, motivation, and moving forward, however, “we need to start small, and develop.” He further said, that this process would need motivation, with KU’s immense brain power providing the fundamental grounds for capitalizing on this critical resource. KU should, therefore, have innovation centers, that would need requisite knowledge from IBM, and hopefully something positive would come from this collaboration.

Dr. Sabeeh queried on the kind of tools that the IBM intended to use for the design center, which as explained by Mr. Mark, would involve the whole design system, and not tools alone. The design would be developed within the center, and the key elements of the Innovation Center would include:

1. Developing capability for advanced microelectronics design, deliverables, including advanced micro-tools set and circuits.
2. Implementing an advanced training and knowledge transfer system to ensure that KU has a sustainable world class micro-education centers.
3. Establishing a world class Center for Design & Innovation
4. Developing R & D potential

IBM’s efforts would be to harness and enhance local capabilities, with tools and technical know-how provided by IBM, and in this venture, the Innovation Center would seek, sustain and augment the academic plan for teaching students, showing value where they need to take part and get back their investment.

Mr. Mark further clarified that the Innovation Center would be multidisciplinary, facilitating KU in translating ideas into products, and products into reality. The ideas would be jointly identified in a self-sustaining environment, an enabling ecosystem that ensures sustainability, upholding the culture to design-build-deliver, and packaged with such benefits as internships, sabbaticals, fellowships, seminars, etc.

Following the presentation, and in response to KU’s suggested requirements, IBM agreed to come-up with the revised proposal in a month’s time, with the intent that the project on the Design and Innovation Center takes off ground early in 2013, with the implementation and recruitment process, and in identifying problems that lead to opportunity, and opportunity to achievement.

Following the Innovation Center, the IBM team gave a briefing on the Cyber Security proposal, the second project in the pipeline with KU, to address critical issues concerning Information Integrity and Security. The proposal is aimed at:

• Multilayer partnership for information integrity and security with KU, through developing a world class R & D facility, focused on homeland

(Contd. P.24...)
Visco-elastic Properties of Chitosan-titania Nano-composites ...(From.... P.16)

The particles appear as dense phase in the form of white round beads having slightly diffused surface. The blurred surface indicates adsorption of the polymer chains on the particle surface. The uniform dispersion of spherical particles is the outcome of interfacial interaction due to the presence of hydroxyl group which interact with hydrolysis titanium ethoxide.

For measurement of the sol-gel produced particle size the hybrid films with 5 and 10 wt% titania were degraded at 430°C for 9 h to decompose the organic matrix, prior to imaging by TEM. TEM image confirms the size of nano-particles ranging from 5-25 nm was achieved in these hybrids. The inter-phase dynamics have been studied using dynamical mechanical thermal analysis (DMTA). Shift in glass transition (Tg) towards higher temperature, increased storage modulus and reduced loss modulus were observed on addition of titania in the matrix. The improvement in the mechanical properties of the polymer was due to the nanometered distribution of titania particles (5-25 nm) in the chitosan matrix resulting from the large interfacial interaction between the basic sites (NH2) available on the polymer chains and Lewis acidic sites from titanium.

Humanities and Social Sciences Poster Day ... (From.... P.3)

The RS is seeking to accomplish through the possibilities of scientific coordination, interdisciplinary exchange and collaborating opportunities to researchers for sharing knowledge and interactive exchange, with possibilities of scientific coordination, interdisciplinary exchange and collaboration. This indeed is the larger objective that the RS is seeking to accomplish through the posters’ forum, encouraging faculties towards harnessing their potential and competence in achieving excellence.

With this perceived purpose, and within this broad scientific frame, the annual holding of the scientific poster day, apart from reflecting the faculties growing scientific dynamism, underlines the event’s significance and value in promoting greater coordination and scientific openness across faculties, departments and researchers.

On its part, RS commitment to promote scientific research across faculties is built around a system of incentives and awards, in recognition of distinguished research. All posters were, therefore, reviewed by a specially constituted Technical Committee, responsible for identifying the top three winning posters in the categories of faculty members, teaching assistants and graduate students, selected on grounds of their outstanding research, and were accorded due recognition, as the ultimate beneficiaries of the posters awards. Such motivation would remain the guiding principle in RS endeavor to instill the norms of quality, excellence and visibility in faculty research.

KU-IBM headed for long-term ...(From.... P.23)

Elaborating on the project, Mr. Tim said that the Cyber Security research would concern breakthrough technologies, identifying data security, knowledge transfer, publication of papers and consultations. The basics of which were further outlined during the course of conferencing with Dr. Rao, who said that “it was important to identify, where to start building security controls, as sharks are already in the water, and recognizing malware is critical. We are trying to build Cyber Intelligence Architecture to protect high value assets, with groups working on encryption, and privacy.”

He further suggested that a workshop could be organized for this purpose, and existing parameters monitored for developing and educating ourselves on situational awareness, so as to work on the security information engine, including the recent radar system to detect cyber threats and frauds.

The conferencing concluded with IBM agreeing to come back with a proposal on the new Joint Development Agreement (JDA), for which IBM would define critical areas, as well as work on suggested areas, as a long-term collaborative engagement. The new revised agreement would include the Cyber Security project, ensuring that it is a research agreement and not sale of products. The agreement with the addendum would be submitted by IBM, as well as a white paper, identifying areas for KU to choose from.
In line with the Research Sector’s strategy of promoting the culture of high quality research at Kuwait University, and within the framework of the Vice President for Research’s initiative of up-lifting the quality and standard of KU research, RS organized a seminar on the “Art of Writing Scientific Papers,” in association with Elsevier. The seminar’s primary focus was on sensitizing faculties to the imperatives of scientific writing, as the basis for authoring and publishing world-class papers. Scheduled under the auspices of the Vice President for Research, Prof. Hasan Al-Sanad, and in the presence of Assts. Vice President for Research, Prof. Haitham Lababidi, Prof. Nejib Smaoui, and Prof. Obaid Al-Otaibi, the seminar, held under the broad title of “Author Seminar,” attracted the presence and participation of KU’s top executives, faculty members, students and attendees.

Covering a broad scientific spectrum, the seminar was presented by Mr. Marc Cha-hin, the key speaker, and Publisher, Elsevier’s Economics & Finance division, and responsible for 20 journals in the field of Microeconomics & Economic Theory. The presentation primarily revolved around wide-ranging themes, focusing on Scholarly Publishing, Scientific language, Rights and Responsibilities of authors, research paper review, Impact Factor, choice of journals as well as use of Scopus in the scholarly workflow, highlighting the key issues that form the fundamentals of quality and class in scholarly writing and manuscripting of high quality scientific papers, targeted at journals of impact. The seminar, held on February 18, 2013, at 12.30 pm, at the Conference Hall (119), Administration Building, Ground Floor, Khaldiya Campus, Kuwait University, was well attended, and culminated in an interesting Questions and Answers round.

- **Project processing Plan** ...(From.... P.13)
RS unfolds an empirical outlook of faculties productivity based on both funded & unfunded research activity

RS consistent drive to gather, record and profile the exact dimensions of faculties funded and unfunded research activity is beginning to provide an empirical outlook of scientific developments at Kuwait University (KU), especially in the sphere of publications, as the fundamental basis for mapping out the quality parameters in institutional research vis-à-vis internationally accepted JCR ranking standard. A strategic beginning in this direction started with RS initiative in reaching out to faculties, and inviting individual faculty members to update their existing publications record, with valid cross-checks, matching their productivity vis-à-vis the listed publications downloaded from the international Scopus database. The mission started in November 2012, and within three months, gross publications data, acquired from the researchers, was assembled, analyzed and quality parameter determined, both for publications appearing in journals of ‘no impact’ factor.

A further analysis showed 356 (17.5%) publications listed in top ranking (Q1) journals, 383 (18.9%) in (Q2) ranked journals, 420 (20.7%) in No Impact Factor (JCR) journals of varying impact, as per JCR index, while an additional 609 (30%) in (Q3) ranked journals, and 263 (12.9%) in (Q4) ranked journals. Combining Q1 + Q2 journals, as many as 36.4% (739) published papers were included in journals of top to high impact, while 26.27% were included in journals of low to medium impact, as shown in Table 1.

Researchers gradual shift to target high impact journals a promising development

Statistics profile the first-ever comprehensive mapping of KU published research over the last five years (2008-2012)

RS funded & Unfunded Research Activity

Table 1: Five Years View of Funded & Unfunded1 Published

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<th>FACULTY</th>
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<th>2010</th>
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* No Impact Factor (JCR)

** Faculty Members.
Analysis provides comparative view of faculties publications score, averaging papers vis-a-vis faculty members generated from funded and unfunded domains, giving the first-ever competitive view of faculties total research productivity/performance, over the last five years (2008-2012) (Table 1).

Statistically, faculties cumulative publications from funded and unfunded research totaled 2031 published papers, of which 1422 (70%) papers appeared in ranked journals (Q1 to Q4) of varying impact, as per JCR index, while an additional 609 (30%) papers appeared in journals of ‘no impact’ factor. A further analysis showed 356 (17.5%) publications listed in top ranking (Q1) journals, 383 (18.9%) in (Q2) ranked journals, 420 (20.7%) in (Q3) ranked journals, and 263 (12.9%) in (Q4) ranked journals. Combining Q1 + Q2 journals, as many as 36.4% (739) published papers were included in journals of top to high impact, while

Attn. Readers

With the continuous inflow of faculties published papers from unfunded research, the unfunded data, recorded in Tables 1 & 3, is subject to change. Interested researchers may follow updates on unfunded research to be carried by RS on regular basis in the forthcoming issues of OVPR Research Newsletter.

Research by Impact Factor (JCR) / No Impact Factor (2008-2012)

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<th>Q3</th>
<th>Q4</th>
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<th>Q2</th>
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<td>1332</td>
<td></td>
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*** Average Strength of Faculty Members. 1Figures under continuous update
33.6% (683) publications appeared in medium to low impact journals. Faculty-wise productivity outlook showed a comparative profile of faculties productivity levels, with the faculties of Science (520, 25.6%), Medicine (487, 24%), and Engineering & Petroleum (435, 21.4%) recording maximum published papers during the last five years. For the remaining colleges, the productivity levels fluctuated from 118 (5.8%) papers for Women’s college, to 112 (5.5%) for Dentistry, 89 (4.4%) for Social Sciences, 68 (3.3%) for Pharmacy, 63 (3.1%) for Business Administration, 55 (2.7%) for Allied Health Sciences, 47 (2.3%) for Arts, 27 (1.3%) for Sharia & Islamic Studies, 20 (1%) for Education, and 10 (0.5%) for Law faculty.

Looking at average productivity from funded and unfunded research, KU enlisted an average of 0.31 papers per faculty member (F.M.) attributed to an average strength of 1302 faculty members over the last five years. The distribution of faculties individual average productivity from funded and unfunded research activity, provided an explicit outlook of various faculties performance, based on their respective average staff strength (Table 1). The average parameter showed highest averages scorers to be the faculties of Dentistry and Women’s college, each recording an average of 0.64 papers/F.M. vis-a-vis average faculty strengths of 34 and 36 faculty members, respectively. These were closely followed by average productivity of the faculties of Pharmacy 0.59 papers/F.M, Medicine 0.58 papers/F.M, Science 0.51 papers/F.M and Engineering & Petroleum 0.40 papers/F.M faculties, with their respective staff strengths averaging 23, 167, 205, and 208 faculty members, over the five-years span. The average publications record of remaining faculties stood at 0.23 papers/F.M for Allied Health Sciences having average staff strength of 48, 0.18 papers/F.M for Social Sciences having an average staff of 98, 0.11 papers/F.M for Business Administration, 0.074 papers/F.M for Arts with its staff averaging 126, 0.073 papers/F.M for Sharia & Islamic Studies with an average of 74 faculty members, 0.039 papers/F.M for Education with an average staffing of 102 faculty members, and 0.033 papers/F.M for Law faculty, with an average staff of 60 faculty members. These figures are indicative of immense scope for enhancing the level and volume of published outputs from all faculties, correlating their numerical staff strengths vis-a-vis published outputs. RS believes that untapped potential of faculties must come to the fore for elevating their respective performance levels, with expectations of a desirable 10% annual average growth levels in terms of papers per faculty members, as a goal to be achieved in institutional research. Overall, these statistics provide revealing insights into respective faculties’ productivity and performance levels attained over five years, which despite...

**Table 2: Five Years View of Funded Published Research**

<table>
<thead>
<tr>
<th>FACULTY</th>
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<th>2009</th>
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<td><strong>Q3</strong></td>
<td><strong>Q4</strong></td>
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<tr>
<td>TOTAL</td>
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* No Impact Factor (JCR) ** Faculty Members
by Impact Factor (JCR) / No Impact Factor (2008-2012)

<table>
<thead>
<tr>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>NIF</th>
<th>FM</th>
<th>Q1</th>
<th>Q2</th>
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<th>FM</th>
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<td>0.0%</td>
<td>679</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 2: Five Years View of Funded Published Research

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**RS funded & Unfunded Research Activity** *(From... P.28)*

Pharmacy 0.59 papers/F.M, Medicine 0.58 papers/F.M, Science 0.51 papers/F.M and Engineering & Petroleum 0.40 papers/F.M faculties, with their respective staff strengths averaging 23, 167, 205, and 208 faculty members, over the five-years span. The average publications record of remaining faculties stood at 0.23 papers/F.M for Allied Health Sciences having average staff strength of 48, 0.18 papers/F.M for Social Sciences having an average staff of 98, 0.11 papers/F.M for Business Administration, with an average strength of 117 faculty members, 0.074 papers/F.M for Arts with its staff averaging 126, 0.073 papers/F.M for Sharia & Islamic Studies with an average of 74 faculty members, 0.039 papers/F.M for Education with an average staffing of 102 faculty members, and 0.033 papers/F.M for Law faculty, with an average staff of 60 faculty members. These figures are indicative of immense scope for enhancing the level and volume of published outputs from all faculties, correlating their numerical staff strengths vis-à-vis published outputs. RS believes that untapped potential of faculties must come to the fore for elevating their respective performance levels, with expectations of a desirable 10% annual average growth levels in terms of papers per faculty members, as a goal to be achieved in institutional research. Overall, these statistics provide revealing insights into respective faculties’ productivity and performance levels attained over five years, which despite

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*** Average Strength of Faculty Members.
their individual scores, reflects a growing momentum towards quality seeping across faculties, with researchers gradual shift towards targeting journals of high impact for publishing their research outputs, regardless of whether the findings emerged from the formalized system of grant support by way of funded research, or from unfunded activity. This indeed is a strategic and reassuring development in institutional research, carrying the seeds of elevating Kuwait University’s international standing among world renowned institutions, known for their distinguished research.

Faculty-wise, a comparative outlook of faculties individual publications’ score, in terms of impact and ‘no impact’ factor journals, reveals two broad currents with scientific faculties having larger percentage of their published output included in journals of varying impact, while humanities faculties largely remaining confined to journals of ‘no impact’ factor. Though small beginnings were detected in Social Sciences with 1.3% (19), Business Administration with 0.8% (12), and Arts with 0.1% (2) published papers appearing in journals of varying impact, the faculties of Education, Law and Sharia did not have a single paper listed in journals of impact, with all their productivity appearing in ‘Journals of no impact’ factor. This is explainable in terms of non availability of clearly defined ranking index among the humanities journals, which could provide an acceptable standard for determining the

Table 3: Five Years View of Unfunded1 Published Research

<table>
<thead>
<tr>
<th>FACULTY***</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
</tr>
<tr>
<td><strong>Allied Health Sciences</strong> (48)</td>
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<tr>
<td><strong>Arts</strong> (126)</td>
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<td>0</td>
<td>0</td>
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<tr>
<td><strong>Business Admin.</strong> (117)</td>
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<td>0</td>
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<tr>
<td><strong>Dentistry</strong> (34)</td>
<td>2</td>
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<td>11</td>
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<tr>
<td><strong>Education</strong> (162)</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Engineering &amp; Petroleum</strong> (208)</td>
<td>24</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td><strong>Law</strong> (69)</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Medicine</strong> (167)</td>
<td>5</td>
<td>17</td>
<td>8</td>
</tr>
<tr>
<td><strong>Pharmacy</strong> (23)</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Science</strong> (265)</td>
<td>4</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td><strong>Sharia</strong> (74)</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Social Sciences</strong> (98)</td>
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<tr>
<td><strong>Women</strong> (36)</td>
<td>2</td>
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<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>39</td>
<td>46</td>
<td>41</td>
</tr>
</tbody>
</table>

* No Impact Factor (JCR) ** Faculty Members.
RS funded & Unfunded Research Activity...

Impact of humanities journals. In fact, RS recently concluded seminar on "Scientific Refereed journals in the Arab World" particularly raised this issue, explicitly stating the need for a reliable standard of Arab scientific journals, and their logical inclusion in international databases, like the ISI Web of Knowledge, to serve as an assessment yardstick for measuring the value and impact of scientific publications, included in humanities journals in the Arab World. In addition, RS was also recently visited by ISI Web of Knowledge team to work out the quality indexing of Arabic Journals Citation Report (AJCR), which could serve as the reliable basis for assessing the impact factor for papers published in Arab World journals based on their ranked status as per AJCR index, an initiative that RS hopes would remove the prevailing uncertainty surrounding the impact factor of humanities published research. On comparative grounds, the statistics reveal that among the scientific faculties, Science 20.5% (416), Medicine 20.1% (409) and Engineering & Petroleum 14.3% (291) colleges were steadily moving in the direction of JCR listed journals for publishing their research outputs, while, Dentistry 5% (101), Women's 4.1% (83), Pharmacy 2.6% (53), and Allied Health 1.8% (36) were making promising beginnings, and increasingly moving towards international refereed journals of high impact for publishing their research outputs. Statistics also reveal a clear dichotomy in sciences and humanities.

### Table 3: Five Years View of Unfunded Published Research

<table>
<thead>
<tr>
<th>Year</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>NIF</th>
<th>FM</th>
<th>Total</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>NIF</th>
<th>FM</th>
<th>Total</th>
<th>Grand Total</th>
<th>Average Paper/F.M</th>
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<td>0</td>
<td>4</td>
<td>49</td>
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<td>0</td>
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<td>0</td>
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<td>1</td>
<td>7</td>
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*** Average Strength of Faculty Members.

1Figures under continuous update
published outputs on quality and impact grounds, with the former exhibiting clear preference for journals of impact, and the latter publishing their research outputs largely in unrefereed, or journals of ‘no impact’. How far this scoring differs in the spheres of funded or unfunded research activity, is analyzed separately and presented in Tables 2 and 3, revealing the role of sponsored, or unsponsored, research in changing the direction and dynamics of institutional research profile.

Table 2 provides a multi-outlook of faculties published papers, in terms of impact factor, comparative performance, academic staff strength vs. average published output. In all, faculties funded research activity resulted in a total of 679 published papers, of which 531 (78.2%) papers appeared in journals of varying impact, while 148 (21.8%) papers appeared in ‘no impact’ factor journals. On quality grounds, 18.4% (125) papers were published in top ranking (Q1) journals, 24.1% (164) papers in (Q2) journals, 22.4% (152) in (Q3) journals, and 13.3% (90) in (Q4) ranked journals. Faculty-wise, maximum 273 (40.2%) publications were generated by the Science faculty over the last five years (2008 to 2012), in comparison to all other faculties, with published output appearing in both impact 233 (34.3%), and ‘no impact’ factor 40 (5.9%) journals. In terms of quality, as many as 147 (21.6%) papers were listed in (Q1+Q2) ranked journals, and 86 (12.7%) in (Q3+Q4) ranked journals. Examining faculty’s performance against the average staff strength of 205 over the last five years, the faculty’s productivity on an average accounted for 0.26 papers/FM per year from funded research. This average, counted for the first time in analysis of funded research by faculties, provides revealing insights into existing productivity and quality levels achieved by faculty members, which tend to vary from faculty to faculty depending upon their respective faculty members’ strength. Thus, Pharmacy faculty’s average output was 0.21 papers/FM averaging its staff strength of 23, Medicine 0.19 papers/FM with an average of 167 staff, Women’s college 0.15 papers/FM with average staffing of 36, Dentistry 0.11 papers/FM with average staff count of 34, Engineering & Petroleum 0.097 papers/FM with staff strength averaging 208, Social Sciences 0.053 papers/FM with average staff of 98, and for remaining faculties the average papers were 0.029 both for Allied Health Sciences and Sharia & Islamic Studies, with the former’s staff averaging 48, and the latter 74, 0.025 papers/FM for Arts with staff averaging 126, Business Administration having 0.021 papers/FM with average staff of 117, and Education having 0.008 papers/FM with an average of 102 faculty members. The data showed no average productivity for Law faculty with its average staffing of 60 faculty members.

In terms of total published papers by faculties, other than the above mentioned Science faculty’s maximum output of (273) papers, the other high scorers were the faculties of Medicine with 157(23%) published papers both in impact and ‘no impact’ factor journals, with 65 (9.5%) papers listed in (Q1+Q2) ranked journals, 74 (10.8%) in (Q3+Q4) journals, and 18 (2.6%) papers appearing in ‘no impact’ factor journals. The Engineering & Petroleum faculty reflected more or less the same pattern with 101 (14.8%) publications, of which 45 (6.6%) appeared in (Q1+Q2) ranked journals, 34 (5%) in (Q3 + Q4) ranked journals, and 22 (3.2%) papers in ‘no impact’ factor journals. The Dentistry faculty accounted for 20 (2.9%) publications, of which 5 (0.7%) papers were listed in (Q1+Q2), and 12 (1.7%) in (Q3+Q4) journals, while only 3 (0.4%) papers were in ‘no impact’ factor journals; Pharmacy had 24 (3.5%) papers, of which 12 (1.7%) were in (Q1+Q2), and 9 (1.3%) in (Q3+Q4) journals, with remaining 3 (0.4%) being in ‘no impact’ factor journals; Women’s college with 28 (4.1%) published papers, had 11 (1.6%) papers listed in (Q1+Q2), 12 (1.7%) in (Q3+Q4) journals, and 5 (0.7%) in ‘no impact’ journals; Allied Health Sciences had 7 (1%) papers, of which 1 (0.1%) paper appeared in (Q1+Q2) and 5 (0.7%) in (Q3+Q4) journals, with only 1 (0.1%) paper in ‘no impact’ journals. The other faculties, however, reflected a reverse pattern with larger volume of published papers included in ‘no impact’ factor journals, as observed in the statistical record of Social Sciences having 26 (3.8%) publications, of which 9 (1.3%) were credited to ranked journals (Q2+Q3+Q4), none in Q1, and a larger number of 17 (2.5%) papers appearing in non-JCR journals; Arts faculty had 16 (2.3%) papers, of which 2 (0.2%) were listed in ranked journals (Q1 & Q3, none in Q2 & Q4), and 14 (2%) in non-JCR journals; Business Administration had 12 (1.7%) papers, 2 listed in ranked journals (Q2 & Q3, none in Q1 & Q4) and 10 (1.4%) in ‘no impact’ journals; Education had 4 (0.5%) publications, all listed in non-JCR journals, Sharia & Islamic Studies had 11 (1.6%) papers, all in non-JCR journals; while Law faculty did not score on productivity scale.

Having analyzed the faculties productivity from funded research (Table 2), RS endeavored to provide the first ever outlook of faculties unfunded research...
Faculty research at Kuwait University (KU) continued to gain momentum, moving forward at a steady pace, with a total of 504 projects defining the sphere of faculty research, during the first six months of the current academic year (Sept. 2012 to February 2013). These figures are particularly significant in registering the active participation of all 13 colleges in the grant process, in terms of ongoing, completed and under-process projects, in the pursuit of basic, applied and humanities research, with individual faculty interests sustained through the Research Sector’s (RS) research support system. This system is an enduring basis for organizing faculty-wide research activity, with well-developed processing and procedural mechanism in place for overseeing the allocation of grants to faculties for original, innovative and high quality research proposals, seeking to address priorities, and dominant national, regional and social concerns. Given this purpose, all faculties are equal contenders in the grants process, with their active participation in strengthening the institutional R & D caliber, as well as being effective contributors in raising the institutional scientific standing worldwide.

It is within this frame, RS resources and facilities are perpetually at faculties disposal, backed by flexible and supportive procedures, for pursuing high quality research that is distinguished and internationally credible. The effectiveness of this system is increasingly visible in faculties enhanced participation in scientific research, as reflected in the sheer volume of projects being actively pursued across faculties, and visible in their respective participation and performance in terms of active and accomplished research. In statistical terms, the overall faculty research activity during the six-month span, accounted for a total of 504 projects, which until Feb. 2013, were in various stages of progress. Of these, 347 (68.8%) projects were ongoing, 71 (14.1%) projects completed, and 86 (17.1%) projects under-process.

Table 1. TOTAL RESEARCH ACTIVITY, 2012/13
(Period 6 Months, Sept 1, 2012 to Feb 28, 2013)*

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<th>Project Status</th>
<th>Funding ** Levels ***</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td>45</td>
</tr>
<tr>
<td></td>
<td>4001 - 10,000</td>
<td>118</td>
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<tr>
<td></td>
<td>more than 10,000</td>
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<td><strong>Completed</strong></td>
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</tr>
<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>13</td>
<td></td>
</tr>
<tr>
<td><strong>Under-process</strong></td>
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</tr>
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<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>48</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>(15.7%)</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>(35.7%)</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>(48.6%)</td>
<td>245</td>
</tr>
</tbody>
</table>

* Source KURS, Data upto February 28, 2013 (Includes ongoing/completed projects from previous year).
** Values in KD.
*** New Funding levels--Effective from Sept 1, 2012.

Faculty research progressively moving forward with 504 projects defining the sphere of ongoing, completed & under-process projects in the first six months of academic year 2012/13. Steady inflow of new projects keeps the grants process constantly on the move...

Development & change clearly visible in projects status changing from under-process to ongoing, and from ongoing to completion.

RS grants system the key driver in laying fundamentals & strategy for KU research to flourish & acquire global dimensions.
and additional 86 (17.1%) newly submitted projects were under-process (Table 1).

The distribution of these projects by funding levels, further revealed a significantly higher concentration of 245 (48.6%) projects in the maximum budgetary category of more than KD 10,000/-, followed by 180 (35.7%) projects in the medium budgetary range of KD 4001-10,000/-, while the least number of projects 79 (15.7%) were enlisted in less than KD 4001/- category. Collectively, the highest and medium range projects accounted for an overwhelming 425 (84.3%) projects, strongly indicating the faculties significant drive towards exploring strategic concerns through well-defined, multi-disciplinary studies, invariably requiring substantial resources and support for achieving comprehensive objectives, and generating distinguished outputs. This objective dominates RS current policy of encouraging faculties to invest their potential and caliber in addressing outstanding concerns, and finding practical solutions to actual problems through empirical studies that investigate, explore and discover results of outstanding scientific and social value. Given the faculties increased involvement in collaborative and large-scale studies, this indeed is a reassuring development in KU research, bringing together the faculties expertise, creative potential and external sources in the pursuit of scientific complexities that continue to challenge science and society, and in the larger interest of serving national needs and priorities. The actual impact of this strategy is being closely monitored, and would only be visible over the coming years, when the outcomes of such studies unfold and become an established trend through supportive statistical records.

Presently, the current status of grants in terms of ongoing, completed and under-process projects, does reveal a majority of ongoing (184, 36.5%) and under-process projects (48, 9.5%) figuring under the highest budgetary category of more than KD 10,000/-, while maximum number of completed projects (58, 11.5%) were in the combined medium and lowest budgetary categories. This is logically explainable in terms of projects with relatively limited objectives and shorter duration, including RIG projects, having a standard one-year run. Budgetary levels were once again reflected in the highest concentration of ongoing, completed and under-process projects 245 (48.6%) collectively, classified under the budgetary range of more than KD 10,000/-, followed by 180 (35.7%) projects in the medium budgetary level ranging between KD. 4001-10,000/-, while only 79 (15.7%) projects figured in the lowest fiscal category of less than KD. 4001/- (Table 1).

As regards to faculties research performance, the prime indicator was the sum total of respective faculties ongoing and completed projects taken together, which totaled 418 projects, reflecting the faculties cumulative research performance during the six months span.

**Table 2. TOTAL ONGOING, COMPLETED & UNDER-PROCESS PROJECTS by FACULTY & FUNDING SOURCE, 2012/13**

(Period 6 Months, Sept 1, 2012 to Feb 28, 2013)*

<table>
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<th>COMPLETED</th>
<th>UNDER-PROCESS</th>
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<th>GRAND</th>
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* Source KUIRS, Data up to February 28, 2013.
** External Institutions.
Analytically, Sciences faculties (Science + Women) collective performance superseded other faculties with a total of 152 (36.4%) ongoing & completed projects, followed by the Health Sciences Center faculties (Medicine, Dentistry, Pharmacy & Allied Health Sciences) with 130 (31.1%) ongoing & completed projects, Arts & Humanities faculties (Arts, Business Administration, Education, Law, Sharia & Social Sciences) combined performance accounted for 70 (16.7%) ongoing & completed projects, and Engineering & Petroleum faculty’s performance totaling 66 (15.8%) ongoing & completed projects (Table 2). In addition, 86 ongoing projects were indicative of faculties continuous research thrust in the form of newly submitted proposals for grant support. Comparatively, a larger number of under-process projects 33 (38.4%) were submitted by Sciences colleges, followed by Health Sciences with 28 (32.5%) under-review projects, Arts & Humanities, and Engineering & Petroleum faculties’ newly submitted proposals totaling 13 (15.1%) and 12 (14%), respectively. A further analysis of 347 ongoing projects, showed science faculties to be the recipients of largest number of grants with 131 (37.8%) ongoing projects, followed by Health Sciences faculties with 110 (31.7%) projects, Engineering & Petroleum faculty receiving 56 (16.1%) grants, and Arts & Humanities 50 (14.4%) grants (Table 2).

By funding-levels, the faculty-wise distribution of ongoing projects (347), showed a higher concentration of 184 (53%) ongoing projects in the more than KD 1,000/- category, 118 (34%) projects in the medium-range budgetary category of KD 400 - 10,000/-, and 45 (13%) projects in the lowest budgetary level of less than KD 400 (Table 3). A somewhat different pattern, however, emerged in terms of 71 completed projects, with maximum 30 (42.3%) completed projects in the medium range budgetary category of KD 400 – 10,000/-, closely followed by 28 (39.4%) completed projects in the budgetary sphere of less than KD 4,000/-, while lowest completed projects 13 (18.3%) were observed in the highest budgetary category of more than KD 10,000/-. The distribution of completed projects by faculties showed almost equitable performance by the Sciences (21.29.6%), Health Sciences 20 (28.2%) and Arts & Humanities 20 (28.2%) colleges, with Engineering & Petroleum registering a relatively lower number 10 (14%) of completed projects (Table 3). Looking beyond the faculties performance to the actual sources of fund providers in the sustenance of faculty research activity, Kuwait University by far remained the single dominant source rendering grant support to an overwhelming 374 (89.5%) ongoing and completed projects, while an additional 44 (10.5%) projects received funding support from as many as seven external institutions involved in scientific collaboration and partnership with KU. These key collaborators included Kuwait Foundation for the Advancement of Sciences (KFAS) responsible for funding 37 (84%) projects, while the remaining external support was distributed over 2 (4.5%) projects supported by United Nations Environmental Program (UNEP), and one project (2.3%) each sponsored by the remaining five sponsors – Kuwait Oil Company (KOC), Kuwait Petroleum...
Corporation (KPC), Kuwait National Guards (KNG), Shofu Company, and AstraZeneca (Table 4). As regards 86 under-process projects requiring funding support, 72 (83.7%) projects were lined-up for KU’s grant support, and remaining 14 (16.3%) under-process projects were the claimants of external funding support (Table 2).

Since, RS funding support is available to faculties under nine distinct research support categories, Table 5 provides the current outlook of faculty research activity by Types of Grants. Analytically, faculty-wise distribution of ongoing projects by Types of Grants, shows maximum number of grants listed under the University grants category, remaining 14 (16.3%) under-process projects the claimants of external funding support (Table 2).

Research projects, 9 (10.5%) under each of the two grant categories of Priority Research projects and Graduate Research projects, 4 (4.6%) were General Facility grants, 3 (3.5%) RIG projects, and 2 (2.3%) were listed under the National Research Projects category. Overall, these figures show the faculties line-up for new grants under various types of grants, with the largest under-review projects placed under the University Grant support category (Table 5).

Considering that successful completion of all projects is crucially linked to research outputs, and their inclusion as published papers in internationally credible journals of high impact, a project’s overall performance is categorically measurable in terms of its research productivity, being a key factor in the ultimate quality of institutional research. Given this objective, Table 6 provides a comparative outlook of faculties research productivity over the last five years in terms of published papers, based on calendar year (January through December). Statistically, faculties productivity levels, achieved on the basis of completed and published research during the reference years – 2008, 2009, 2010, 2011 and 2012, reveal faculties cumulative productivity, which totaled 163 published papers during 2008, 146 during 2009, 143 during 2010, 141 during 2011, and 85 published papers in 2012. The figures for 2012 are tentative, and currently in a state of upward mobility, considering the usual...
International team led by Kuwait University researchers achieves breakthrough findings in dental abrasion

A collaborative cross-country multidisciplinary research identifies the culprit behind mammalian teeth ‘wearout’!

In recently published research in the Journal of the Royal Society Interface, an international team led by Kuwait University researchers achieved a breakthrough by identifying the prime culprit behind dental wear, tracing its cause to sandstorm dust. This cross-disciplinary nanoscale research showed how quartz dust impacts mammalian teeth, abrading its enamel coating. Most significantly, the study effectively utilized advanced techniques in finding the answer, opening a whole new area of research that they term ‘dental nanowear’.

Released on January 9, 2013, the study’s main focus was on the pattern of tiny marks on worn tooth surfaces that provides the fundamental basis for understanding the diet of fossil mammals, including early human ancestors and close relatives. The challenge of the study lay in unravelling the causes of the wear, bringing together an international multidisciplinary team of experts, including Kuwait University (KU) researchers from the faculty of Dentistry and the College of Engineering & Petroleum, involving them in the search for new techniques that could provide the answer. While quartz dust was the major culprit abrading teeth, a lesser effect was produced by silica phytoliths, particles produced by plants rubbing enamel. Linking dental microwear to quartz dust suggested a revision of what had until now been held as the causative factor of microwear, apart from historically indicating the possibility of what East African hominins may have suffered during dust storms, possibly carried by seasonal winds from the Arabian peninsula.

The research attributes physical wear of mammalian teeth to the extremely hard particles of crystalline quartz in soils in many parts of the world. Experimentally, single particles when mounted on flat-tipped titanium rods and slid over flat tooth enamel surfaces at known forces, revealed the propensity of quartz particles in removing pieces of tooth enamel at extremely low forces, implying that even during a single bite, these particles could abrade much of the surface of the tooth, when present in numbers. By contrast, plant phytoliths, being non-crystalline and much softer than quartz or tooth enamel, did indent the enamel under same conditions, but without immediate tissue removal, exhibiting an effect similar to the pressing of a fingernail against a softwood desk to leave a rubbing mark, visible, but with no tissue loss.

The research incorporates a new theory of wear developed by Tony Atkins, a research collaborator from Reading (UK), suggesting exactly what geometrical and material conditions are required for abrasive versus rubbing contacts. In Prof. Atkins’ words, “people have not realized the vital importance of factoring fracture toughness into wear analyses.” Elaborating further, KU researcher Prof. Peter Lucas added “we think that we have gone a lot further with the analysis of microwear than any previous investigations, for in uncovering the mechanisms that cause it, you need to go smaller – to the nanoscale level. It is only then that the difference between relatively innocuous rubbing contacts and those that remove tooth tissues becomes clear.” In empirical terms, the team could distinguish between marks made by quartz dust, plant phytoliths and also by enamel chips rubbing against their parental tooth surface.

The international team, led by researchers from the Faculty of Dentistry and College of Engineering & Petroleum, Kuwait University (KU), included researchers from the Max Planck Institute for Evolutionary Anthropology (Germany), University of Reading (UK), and the University of Albany (New York, USA). According to Dr. Abduwab Almusallam, from the College of Engineering & Petroleum (KU) “the nanotech center founded at KU’s Engineering & Petroleum faculty is ideally equipped to assist multidisciplinary studies of this kind, and we are happy that we could provide the techniques for finding the answers to major biological issues. This particular study, significantly opens up a whole new area of investigation – dental nanowear.”
activity in terms of published papers, presented in (Table 3), an area which had predominantly remained outside the frame of KU sponsored activity, yet continues to exist as a parallel stream of research, involving faculties in active, albeit unfunded, research. For a comprehensive outlook of institutional research performance, tracking the research record of unfunded sphere, was equally challenging in gathering individual faculty members productivity record, and enabling RS to probe the analytical dimensions of as yet, elusive domain of unfunded research. Statistically, faculties cumulative productivity from unfunded research totaled 1,352 papers, of which 231 (17.1%) papers were listed in top ranking Q1 journals, 219 (16.2%) in Q2 journals, 268 (19.8%) in Q3 journals, 173 (12.8%) in Q4 journals, and 461 (34.1%) in non-JCR journals. Taking (Q1+Q2) journals, 450 (33.3%) papers were found in top ranking journals of significant impact, and 441 (32.6%) in (Q3+Q4) ranked journals. These figures are dramatic, in revealing the quality content of faculties published outputs from unfunded research that found inclusion in ranked journals of impact and international repute, as per the JCR index, demonstrating the effectiveness of unfunded research activity in enhancing the impact value and visibility of KU research.

Faculty-wise comparisons, broadly reveal the colleges of Medicine with 330 (24.4%) published papers, Engineering & Petroleum with 314 (23.2%) papers, and Science with 247 (18.3%) papers, having the largest number of unfunded publications to their credit. These were also the colleges having majority of their published papers listed in JCR ranked journals, with Medicine having 270 (20%) papers in Q1 to Q4 journals, Engineering & Petroleum having 212 (15.7%) papers in Q1 to Q4 journals, and Science having 183 (13.5%) papers in Q1 to Q4 journals. The performance of other faculties in unfunded research oscillated between 92 (6.8%) papers credited to Dentistry faculty, 90 (6.6%) to Women’s college, 63 (4.6%) to Social Sciences, 51 (3.8%) to Business Administration, 48 (3.5%) to Allied Health Sciences, 44 (3.3%) to Pharmacy, 31 (2.3%) to Arts, 16 (1.2%) each to Education and Sharia & Islamic Studies, and 10 (0.7%) to Law faculty. On average grounds, the Dentistry faculty enlisted maximum average score of 0.53 papers/F.M having an average staff of 34 faculty members per year. Women’s college 0.49 papers/F.M credited to an average staff of 36 faculty members, Medicine and Pharmacy closely accounted for 0.39 papers/F.M, and 0.38 papers/F.M with their respective staff averaging 167 and 23 faculty members, Engineering & Petroleum 0.30 papers/F.M with an average of 208 faculty members, Science 0.24 papers/F.M papers by 205 faculty members, and Allied Health Sciences enlisting 0.2 papers/F.M published with an average of 48 faculty members per year. For the remaining faculties, their average productivity was 0.13 papers/F.M for Social Sciences having an average of 98 faculty members, 0.087 papers/F.M for Business Administration’s average staffing of 117, 0.049 papers/F.M for Arts faculty with an average faculty members totaling 126, 0.043 papers/F.M by Sharia & Islamic studies with an average staff strength of 74 faculty members, 0.033 papers/F.M by Law faculty with its staff averaging 60 faculty members, and 0.031 papers/F.M for Education faculty with an average of 102 faculty members. These figures enabled RS in mapping the exact dimensions of institutional productivity, determinable on grounds of both funded and unfunded research papers included in international refereed journals, and listed in world renowned databases, providing the quality outlook and scientific competence of KU research vis-à-vis other countries. A clear situation is now beginning to emerge on KU’s publications record, with statistics strongly suggestive of the scope and need for continuous improvement in individual faculties performance and productivity, especially the needed shift in the humanities research culture towards JCR indexed journals. For the present, RS has attempted to profile the first ever view of the totality of research productivity at KU, creating an empirical database of faculties publications emanating from unfunded research, which will henceforth be continuously updated, enriched and sustained, as a vital productivity stream, alongside the vast reservoir of funded database. Together, these two streams would collectively unveil the institutional world profile on the fundamentals of its scientific activity, elevating in the process, KU’s world ranking in the years ahead. It is this profound vision that RS is endeavoring to accomplish through its programs, policies, support system, incentives, and more importantly, its developmental strategy, in the coming times. While this analysis tends to focus faculties attention on their respective publications levels, and scope for sustained improvement, RS is all set to take this analysis to the next more deeper phase, with its efforts directed at department-wise analytical perspective on faculty members publications record within each faculty, to be released soon.
The Research Sector accorded a warm welcome to a 20-member student delegation from Pittsburg University, Germany, on a visit to the Office of the Vice President for Research (OVPR), on Wednesday, February 13, 2013, at 12.30 pm.

The delegation, headed by Prof. Athanasios Vasilakos, Professor of Computer Science & Engineering, Dept. of Computer Science, was on a mission to acquire information, and be acquainted with the prevailing scientific culture at Kuwait University.

The volume aggregates important documents issued by formal bodies in the Gulf Region, and highlights the region’s current political, economic, social and cultural events.

E. Guide to M.A. and Ph.D. Dissertations in the Gulf & Arabian Peninsula Region and its Vicinity:

The guide presents abstracts of Master’s and Ph.D. Dissertations. These documents reflect the range and diversity of OVPR’s publications, released by its integral offices, for the delivery of vital scientific information to target audiences, as an ongoing process of growth, development and visibility. While the above documents have been widely distributed and displayed, the production momentum has already shifted on OVPR’s next phase of publications, currently under preparatory mode, incorporating gross information, to be transmitted to an expanding community of researchers, scientists, decision-makers, planners, institutions, partners, and global users/browsers. A progressive cycle of information preservation and transfer is at the heart of this activity, remaining forever on the move, driven by the need to serve the scientific community, and to keep the wider public informed and aware, for the ultimate realization of the strategic goal of globalizing KU’s scientific developments, through rigorous publications, publicity and display channels, as a long-lasting institutional mission and commitment.

For Research, who expressed his pleasure at the visiting students’ eagerness to broaden their knowledge and information horizons, and warmly shared with them the essentials of KU research activity, in an atmosphere of cordiality, while distributing a package of RS publications to the delegates Prof. Vasilakos acknowledged the felicitation and thanked Prof. Haitham for the warm welcome, as a befitting attribute to the value of such cultural and scientific exchange between universities and students communities worldwide.
time lag between a papers acceptance and its eventual appearance in print-form, tied as it is with the concerned journal’s release timeline, which would eventually give a definitive measure of faculties productivity during 2012 (Table 6). In fact, the productivity levels do remain in a state of constant flux, with figures reflecting minor variations over periods and times, in view of the cycle involved in research papers submission, acceptance and inclusion as printed journal articles. Hence, faculties exact performance measure remains subject to minor productivity adjustments. The above statistics unfold dynamic insights into faculty research, with data-sets confined to the first six-months of the current academic cycle (September 1, 2012 to February 2013), profiling significant growth, and setting the path for further expansion and improvement in faculty research activity, in view of the potential approvals granted to under-process projects. A continuous process of development and change is clearly observable in the status of projects, changing from under-process state to ongoing, and from ongoing to completion, while the continuous inflow of new projects keeps the grant process constantly on the move, expanding, strengthening and advancing institutional scientific profile worldwide. The key driver in this entire process is the RS grants system, laying the fundamentals and strategy for the sustenance of faculty research, while setting the path for institutional research to flourish and acquire global dimensions. Inherent in this strategy are the seeds of a research culture that must permeate across all faculties, creating an enabling environment for institutional research to gain international presence, credibility, and distinction, the aspirations that RS is driven towards realizing...!

OVPR Research Quarterly

Statistics on Faculty Research ... (From P.36)

5. TOTAL RESEARCH ACTIVITY by TYPES OF GRANTS
Academic Year 2012/13** (Period 6 Months, Sept 1, 2012 to Feb 28, 2013)*

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<th>PRP</th>
<th>ERP</th>
<th>GFP</th>
<th>GRP</th>
<th>URP</th>
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** O = Ongoing (347) C = Completed (71) U = Under-process (86)

* Data as of February 2013。
* URP = University Research Projects
* RIG = Research Initiation Grants
* PRP = Priority Research Projects
* GRP = Graduate Research Projects
* GFP = General Facilities Projects
* ERP = External Research Projects
* NRP = National Research Projects

Table 6. PUBLISHED PAPERS, COMPARATIVE Five CALENDAR YEARS*

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<td>TOTAL</td>
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* Figures for Published papers coordinate with calendar year (Jan. 1 to Dec. 31).
** Data likely to change with inflow of more published papers for 2012.