

OVPR RESEARCH Newsletter

Kuwait University

July 2016



Scientific Posters Day Events at Kuwait University

- KU President inaugurates RS Scientific Poster Day events for Humanities & Sciences faculties
- Vice President for Research, inaugurates 21st Health Science



RS New Executive Team

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Research (Sept. 1, 2015-
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VPR's MESSAGE

RS inclined towards harnessing faculty members caliber, competence & potential for original, innovative & high quality research

RS enduring commitment remains on sustaining the grants process & elevating institutional research through quality, integrity & excellence



Nine months through the current academic year 2015-16, the Research Sector (RS) is on a developmental path, implementing its established programs, facilitating faculty members in pursuing advanced and innovative research, and enhancing collaborative ties within the framework of existing research support rules and regulations. This period has been particularly significant in enlisting 5% growth in funded research, with 630 projects defining the volume of faculty research, midway through the academic year 2015-16. These include 388 (61.6%) ongoing projects, 90 (14.3%) completed, and 152 (24.1%) under-process. By funding levels, faculty preferences almost equally including towards 324 ((51.4%) big-budgeted grants, alongside an equally dynamic small budgeted 306 (48.6%) projects-zone. Significantly, these grants were over the different colleges.

A climate is also being created through flexible and facilitative approach, for which RS is reviewing the existing grant support by-laws to make the system more pliable to researchers needs. New clauses on intellectual property rights and patent registration are also being incorporated, enhancing the manual's content and scope, an updated edition of which is scheduled for the academic cycle 2016-17.

While RS thrust is on encouraging priority and interdisciplinary research, it is also driven towards expanding its collaborative base, with two new MOUs recently signed with the Ministry of Youth Affairs (MSYA), and Public Authority for Applied Education & Training (PAAET), in addition grounds are being created for potential partnership with Kuwait Institute for Scientific Research (KISR). Presently, RS collaborative base enlists 59 (12.3%) projects, being pursued in partnership with six external institutions, at a time when RS is exploring additional avenues for en-

hancing its sphere of joint and collaborative research.

We are also developing our infrastructural assets for facilitating researchers to accomplish advanced, analytical, and experimental research that yields outputs of international quality and credibility. On the publications front, research quality index is steadily improving, with statistics exhibiting a clear surge in KU published research in JCR ranked journals over a 17 years (2000-2016) span, enlisting 1944 (75.4%) papers from funded research in Q1 to Q4 journals of impact. Faculty members increasingly targeting high impact journals for publishing their research outputs, as indicated by the growing list of reward recipients, reaching 406 beneficiaries midway through the current academic year, demonstrating that the research rewards incentives play a role in promoting publications in high impact journals.

While standing on the threshold of the new academic year (2016-17), RS is ready with a packed calendar of upcoming events, signifying the pace and momentum of activities ahead. The onset of new academic cycle (2016-17) would thus foresee ceremonial honoring of the winners of Researcher Awards, SPSS Workshop, and RIG Orientation Session, specifics of which are outlined in this issue of the OVPR's RESEARCH newsletter, presenting a refreshing new image and outlook of RS latest developments, relaying valued information for the benefit of the scientific community and vast readership, keeping them informed and updated on scientific developments at Kuwait University.

Prof. Taher A. Al-Sahhaf
Vice President for Research

HUMANITIES POSTER DAY

RS enlists participation of six colleges in the joint display of 60 posters at humanities & social sciences posters event, 2016

Under the patronage of Kuwait University President, Prof. Hussein Al-Ansari, the Research Sector (RS) organized academic year 2015-16 Scientific Poster Day event for Humanities and Social Sciences faculties, amidst a gathering of top executives, faculty members, researchers, participants and viewers. The event held at the Abdulla Al-Jabir Theatre Hall, Shuwaikh campus, on March 21, 2016, provided a legitimate platform for the humanities & social sciences sector, bringing together researchers from six colleges for the collective display of *60 posters*, reflecting a wide range of themes currently being researched across the humanities colleges. Exhibiting the scientific attainments of *faculty members, teaching assistants and graduate students*, the event provided dynamic outlook of an active community of researchers, presenting their latest research for public viewing in the spirit of scientific openness, and benefitting from ensuing discussions, dialogue and opinions. The event was hosted by Prof. Taher Al-Sahhaf, Vice President for Research, amidst the presence of Assistants Vice President for Research, Prof. Yousif, Garashi, Prof. Haider Behbehani, and Dr. Laila Marouf, Deans and Vice Deans of participating colleges, as well as KU's widely representative executive, administrative and faculty community.

Under the Patronage of KU President, RS hosts the Scientific Poster Day for *Humanities & Social Sciences* faculties, for the academic year 2015/16



▲ KU President inaugurates Humanities & Social Sciences Posters Day

RS annually grants awards for top-ranking posters in the categories of faculty members, teaching assistants and graduate students

This year's humanities & social sciences posters event enlisted a much larger volume of (60) posters, registering a 100% increase over last years (2015) posters (30) activity, reflecting the researchers increased receptivity to the value of bringing their scientific research to the forefront of public attention, with the occasion providing nurturing grounds for developing new ideas and concepts for joint and interdisciplinary research. The displayed posters were distributed over the colleges of Arts (3), Business Administration (15), Education (11), Law (3), Sharia & Islamic Studies(10), and Social Sciences (17), highlighting emerging trends in faculty research, with displayed themes critically focused on issues of contemporary social, national, and economic significance, as well as aspects of human life, environment and culture. All posters displayed at the humanities posters event, were aggregated in image format, providing critical substance for generating year 2015-16 Scientific Posters Day publication, as a vital reference on the scientific substance and content on the humanities



▲ Researchers in an interactive round, sharing views and ideas on displayed Posters

and social sciences research activity as exhibited in the displayed posters.

Going around the displayed posters, Prof. Al-Ansari, accompanied by Prof. Taher, appreciated the commendable efforts of faculty members and graduate students, encouraging them to acquire higher levels of scientific sophistication through advanced and innovative research. Addressing the researchers, Prof. Taher reassured the participants that RS doors would always be open for facilitating the researchers in realizing their research objectives, and the scientific posters event would remain an enduring platform and opportunity for faculty members in spreading awareness on the extent of

was a key driver in bringing together researchers from diverse disciplinary streams, providing an opportunity for faculty members to envision new ideas and concepts with a multidisciplinary focus, in a dynamic display of humanities and social sciences research, enriching the prevailing scientific culture at KU.

At this juncture, the Research Sector is increasingly committed towards enhancing the humanities colleges' participation in advanced and innovative research, and in implying an incentives-based system for awarding researchers, as a stimulant to achieve scientific excellence in their research endeavors. For recognizing excellence, all posters were subjected to the standard review process, with the *reviewers panel* responsible for identifying top three winning posters in the categories of faculty members, teaching assistants and graduate students, selected on grounds of the scientific merit, credibility and impact of the displayed research. The awards are distributed annually, and this incentive would remain the dominant factor in RS endeavor to instill the norms of *quality, integrity* and *excellence* in KU research.



▲ A line-up of executives and participants at the Humanities & Social Sciences Posters event

SCIENTIFIC POSTER DAY

A cumulative display of 98 Posters reflects the prevailing scientific dynamism across sciences colleges

In continuing a mission that started seven years ago for bringing together faculty researchers from different disciplinary streams for joint display of their latest research activity, the Research Sector (RS) is registering reassuring signals about the faculty members enhanced receptivity towards exhibiting their scientific accomplishments on the posters platform, with much larger volume of posters displayed in this year's sciences posters event. This encouraging development was amply visible in the *eighth season* of the posters activity, with gross volume of scientific presentations reaching a record total of *98 posters* at this year's scientific posters event, held on March 28, 2016.

The sciences posters day, held Under the Patronage of Kuwait University's President, Prof. Hussein Al-Ansari, was organized by the Vice President for Research, Prof. Taher Al-Sahhaf, and inaugurated by Prof. Ansari, amidst the presence of RS Assistants Vice President, Prof. Yousif Garashi, Prof. Haider Behbehani, and Dr. Laila Marouf, Deans and Vice Deans of participating faculties, KU's top executives, faculty members, researchers, teaching assistants and graduate students. Of special significance was the presence of researchers from Kuwait Institute for Scientific Research (KISR), enlisting their participation in KU's scientific poster day for the third consecutive year, with the display of as many as 13 posters, alongside KU's mainstream sciences colleges, investing the event with an added value. Enlisting a far wider coverage in posters presentation, this year's event for sciences

KU President inaugurates RS annual Poster Day for Scientific faculties, with 2015/16 event bringing together researchers from mainstream sciences colleges, alongside KISR's participants



▲ KU President inaugurates Sciences Posters Day event

Displayed posters unveil a wealth of information for creative minds to develop new ideas, concepts and issues that continue to challenge science, society and mankind

faculties was significant in bringing together diverse creative minds from across five scientific faculties, as well as KISR's participants, in an organized display of scientific research, in wide-ranging disciplinary streams and topics of *contemporary scientific, national and social* significance, with this year's sciences posters display exceeding (98) last year's (2014-15) posters (73) presentations.

The event significantly reflected faculty members increased diversion towards joint research, as observed in the posters' credit-lines, with multi-researchers involved in co-authoring research outputs. This development complements RS strategy of encouraging researchers to explore inter-disciplinary dimensions in research and in advancing the realms of scientific research at Kuwait University through their joint and collaborative input. The event is also aimed at enhancing the institutional R & D potential, strengthening KU's scientific competence and capacity for probing research complexities and areas of strategic significance through shared expertise and multidisciplinary input. Given this development, year 2015-16 Scientific Poster Day, goes beyond the strategic objective of annual hosting of the Posters event, by

RS policy geared towards *quality, integrity & credibility* in KU research

sensitizing researchers to the significance of critical areas that need to be explored through collaborative research, which hold potential for scientific breakthroughs, discovery and inventions.

It is largely within this developmental frame that the 2016 sciences posters event provided nurturing grounds for *researchers, teaching assistants, graduate students* and *external participants*, to share their interests in the discovery of new concepts and ideas for advanced and innovative research. Reflecting currently researched areas at KU, the Sciences Posters Day exhibited scientific creativity of an active community of faculty researchers, jointly displaying 98 posters, unveiling a wealth of scientific information for creative minds to probe issues that continue to challenge *science, society* and *mankind*.

The event, held on March 28, 2016, at the ground floor lobby of the Presidential Building, Khaldiya campus, presented the research accomplishments of *five colleges*, as well as *KISR*, with the displayed posters distributed over the colleges of Engineering & Petroleum (24), Science (39),



▲ Participants and viewers exhibiting keen interest in displayed posters

Interactive discussions and dialogue imperative for energizing institutional research, creating scientific vibrancy across disciplines, and opening the door for joint and collaborative studies

Life Sciences (11), Computing Sciences & Engineering (10), Architecture (1), and KISR (13). The scientific content of the posters was explained by the concerned researchers, highlighting key points of their respective research to the viewers, and benefitting from the interactive exchange of *ideas, thoughts* and *views* expressed. RS believes that such interactions are vital for *energizing* the institutional research process, *creating scientific vibrancy* across disciplines, and *opening doors* for innovative and creative ventures, with RS policy geared towards *quality, integrity* and *credibility* in KU research.

The annual holding of Scientific Posters Day event is precisely meant to achieve this purpose through the posters platform, in recognition of researchers scientific attainments, as well as in enhancing the creative and competitive spirit among faculty

members. For identifying top ranking posters, all displayed research work at the sciences posters event, was critically assessed and reviewed by an *experts committee*, especially constituted for the purpose, to shortlist meritorious and distinguished research, for the key awards in recognition of outstanding research in the three categories -- *faculty members, teaching assistants* and *graduate students*. The awards are aimed at encouraging researchers to *innovate, excel* and *aspire* for outstanding, internationally credible outputs, through comprehensive proposals of scientific, national and social significance.



▲ Top executives and Participants at the Sciences Poster Day event

KU- PAAET MOU

KU President signs MOU with PAAET for enhancing communication and advancing scientific research towards wider horizons

Within the framework of institutional policy of expanding the realms of scientific research at Kuwait University (KU) through effective alliances and partnerships with external institutions, a ceremonial event marked the coming together of Kuwait University and Public Authority for Applied Education & Training (PAAET), laying the basis for *sponsoring, facilitating and implementing* joint research and studies. The event was particularly significant with the two institutions formalizing their collaborative agreement with the signing

KU-PAAET formalize collaborative agreement laying the basis for *supporting, facilitating and implementing* joint research in response to contemporary realities & developmental needs



▲ KU President and PAAET Director General formalize collaboration agreement with the Signing of MOU

Research cooperation aimed at sharing expertise and encouraging researchers to innovate, discover and excel Reserach Budget

of Memorandum of Understanding (MOU) between the KU President, Prof. Hussein Al-Ansari, and PAAET's Director General, Dr. Ahmad Al-Athari. The signing ceremony at KU's Council Hall, on March 3, 2016, added a collaborative dimension for the pursuit of joint studies, and for encouraging researchers to innovate, discover and excel. The MOU was the result of sustained

efforts and shared interests for scientific coordination between KU and PAAET, in cooperation with the Research Sector's office of External Collaboration & Consultation, for enhancing the sphere of collaborative research by involving external institutions in the pursuit of strategic studies of national significance and priorities.

The ceremonial event involved participation of a distinguished community of top executives from both sides, and included the elite presence KU Secretary General, Vice Presidents for Research, Planning, Health Sciences, and Academic Support Services, as well as top cadres from PAAET, in addition to experts and specialists in diverse fields of scientific research.

Speaking on the occasion, Prof. Hussein emphasized the significance of the agreement, as an initiative for enhancing communication between



▲ Elite executive gathering at the Ceremonial Signing of KU-PAAET Partnership Agreement

RESEARCHERS AWARDS

RS announces Researchers Awards winners for the academic year 2015/16

Awards reflect RS intent and seriousness in promoting the culture of scientific excellence in KU research

In continuing its policy of recognizing outstanding accomplishments of faculty members for their distinguished research, the Research Sector carried forward its annual cycle of identifying the distinguished community of researchers for the academic year 2015/16, for having achieved scientific distinction based on excellence of their research outputs. The process, which started with inviting faculty-wide nominations, went through standard review and evaluation at the faculty and university levels, leading to shortlisting of top-ranking nominees for the researchers awards in the cat-

Researchers Awards winners

- **Distinguished Researchers Award (Basic & Applied Sciences)**

Prof. Saad Makhseed
 Dept. of Chemistry
Faculty of Science


- **Best Young Researchers Award (Basic & Applied Sciences)**

Dr. Suleiman Al-Sabah
 Dept. of Pharmacology
Faculty of Medicine



egories of Distinguished Researchers and Best Young Researchers.

The names of these distinguished nominees, as recommended by the Higher Committee for Researchers Awards, were forwarded by the Research Sector to Prof. Hussein Al-Ansari, President, Kuwait University, for final clearance and approval. The President endorsed the recommendations of higher committee, leading to the announcement of winners of researchers awards for the academic year 2015/16, as listed above.

These annual awards reflect RS intent and seriousness in promoting the cul-

ture of scientific excellence in institutional research, and enhancing faculty members potential and capabilities in achieving scientific competence through their research that receives international recognition and acclaim. Given this purpose, RS annually accords due recognition to the award winning researchers in a special honoring ceremony, to be scheduled ahead.

In appreciating the efforts of award winners, Prof. Haidar Behbehani, Assistant Vice President for Research, congratulated Year 2015/16 distinguished awardees for their outstanding research accomplishments, wishing them greater success in their future endeavors. □

▶ **KU-PAAET sign collaborative agreement ... (From P. 8)**

the two institutions, and expediting scientific research to reach wider horizons through appropriate usage of *potentials, available resources and technology*. He also expressed the dire need for energizing the participation of faculty members in innovative research and scientific conferences in response to contemporary realities and demands of modern era. The researchers must also aim at high quality research outputs that are distinguished and increasingly lead

to scientific publications of impact, as well as their enhanced participation in social and cultural activities.

The event was a befitting occasion with the KU President according a warm welcome to the PAAET's leadership, and stressing the need for the two institutions to work together as partners for achieving the goals and aspirations of higher education.

On his part, Dr. Al-Athari valued
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the signing of research collaboration agreement between the two largest institutions of education in Kuwait, stating that the MOU signified years of partnership between KU and PAAET involving exchange of faculty members and use of scientific laboratories.

The agreement marked carrying forward of the partnership process towards the realization of joint goals through unifying regulations, setting

(Contd. P.32...▶)

RS VISITS

OVPR's executive team expresses appreciation for Science faculty's initiative

A high profile executive team from the Office of the Vice President for Research (OVPR), visited the college of Science on March 14, 2016, in response to a cordial invitation, providing an ideal opportunity for addressing research-related concerns, issues and problems encountered by the researchers, while setting the empirical basis for appropriate steps, and suggestions that could develop, enhance and elevate scientific research.

The visiting OVPR team was headed by Prof. Taher Al-Sahhaf, Vice Presi-

OVPR's executive team visits faculty of Science for an interactive session with the researchers in an atmosphere of cordiality, scientific openness and exchange of views



▲ RS Top Executives addressing research-related concerns of researchers at the Faculty of Science

Discussions centered on addressing research-related concerns, and taking empirical steps for developing potentialities and elevating scientific research

dent for Research, and his Assistants, Prof. Haider Behbehani, Prof. Yousif Garashi, and Dr. Laila Marouf, and was received by Prof. Jassim Al-

Hasan, Science Faculty Dean, and Dr. Khalid Al-Qattan, Vice Dean for Research & Lab Affairs, for an interactive session, involving the participation of a number of faculty members. The discussions primarily centered on wide-ranging aspects of faculty research activity, creating a climate for an open exchange of thoughts and views on research implementation, procedural implications, research quality, developing potentialities, achieving recognition and credibility.



▲ A view of faculty members interactive session with RS Executives at the Faculty of Science

For the Research Sector (RS), the visit constituted a vital step towards strengthening the bonds of confidence with the researchers, enhancing their trust in research support ▶

Vice President for Research visits KISR's Director General

Discussions focus on enhancing KU-KISR collaboration

Prof. Taher emphasizes the significance of coordinated efforts in the field of graduate students research



▲ Vice President for Research in a meeting with KISR's Director General

Prof. Taher Al-Sahhaf, Vice President for Research (VPR), and his Assistant, Dr. Laila Marouf, visited Dr. Sameera Al-Sayid Omar, Director General, Kuwait Institute for Scientific Research (KISR), on April 27, 2016. The visit aimed at discussing aspects of enhancing joint collaboration between KU and KISR. The VPR emphasized that KU's focus is on the importance of strengthening collaborative bonds with KISR, and encouraging

Kuwaiti youth to pursue scientific research. He also stressed the significance of coordinated efforts between KU and KISR in the field of graduate students research at KU, as well as matters concerning mutual supervision, and supporting the development of Kuwait.

Dr. Laila drew attention to KU's sustained efforts to communicate with KISR through the holding

of joint scientific lectures, and to view the research projects implemented by the two institutions, apart from exchange of expertise in the larger interest of benefitting everyone. Dr. Sameera emphasized the importance of mutual collaboration between KU and KISR, as well as the significance of focusing on human cadres, and benefiting from capabilities and expertise of both parties. □

► RS executives team visits Faculty of Science...(From P. 10)

system, and familiarizing them with encouraging opportunities and facilities available for advanced and innovative research that could lead to scientific discovery and creative excellence.

The session reflected the spirit of openness in discussing such topics as specification of types of scientific journals for publishing research papers based on research projects budgetary levels, quality measure of projects research productivity, and procedures for acquiring research equipment and consuma-

bles. Matters concerning petty cash procedures were also raised and discussed, in addition to several other research-related concerns.

The session concluded with the OVPR executive team expressing appreciation for the initiative taken by the college of Science in extending the invitation for an open meeting

concerning faculty's research activity. Such initiatives are bound to enhance the researchers confidence in RS grant support system, with associated *rules, regulations* and *procedures* providing an encouraging climate for their increased participation in funded research, and motivating them for pursuing high quality research. □

SCIENTIFIC POSTERS WINNERS

Posters Awards
Winners
identified in
the categories
of faculty
members, teaching
assistants
and graduate
students

Closely following the recently held Scientific Posters Day events for humanities and sciences faculties, the Research Sector (RS) went ahead with enlisting top ranking posters of the academic year 2015/16, based on specialized evaluation committee reports. Subsequently, the Vice President for Research, Prof. Taher Al-Sahhaf, announced the names of winners for Humanities and Sciences faculties, congratulating the researchers on their scientific accomplishments, and encouraging all participating researchers for an ambitious drive towards scientific excellence, and winning laurels in the years ahead.

Elaborating on the significance of scientific research at Kuwait University, Prof. Taher highlighted the special attention given in encouraging and inspiring researchers towards pursuing scientific research and studies for generating new knowledge

RS announces winners of top ranking Posters displayed at the Scientific Posters Day events for Humanities and Sciences faculties for the academic year 2015-16



▲ Scientific Posters Booklets, 2016

*List of Posters Award
Winners in all
categories (P.13)*

that advances and enriches science, and provides the basis for serving humanity and society.

In this process, the Research Sector provides the resources and facilities through its well-established Research Support System, encouraging faculty members in all colleges to avail the provision of grants, awarded to researchers in all specializations for pursuing *basic, applied* or *humanities* research, and benefit from the grant support backed by flexible procedures and a congenial environment for implementing projects. Indeed, these provisions and facilities form the core of RS mission in advancing scientific research at Kuwait University.

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It is within this ideological frame that RS organized the scientific posters day event for the humanities colleges, which was held on March 21, 2016, and enlisted the participation of six colleges, leading to the cumulative display of 60 posters, highlighting latest research activity, divergent themes and scientific fields currently being researched across the humanities colleges.

The scientific poster day event for the sciences colleges was held on March 28, 2016, bringing together researchers from five faculties, as well as researchers from Kuwait Institute for Scientific Research (KISR), jointly displaying their scientific work through 98 posters, presenting a dynamic outlook of research activity across sciences colleges, in an environment of scientific openness, and providing congenial grounds for sharing of interests, exchange of views and suggestions.

The scientific posters events were hosted by the Vice President for Research, amidst the presence of his Assistants, Prof. Yousef Garashi, Prof. Haider Behbehani, and Dr. Layla Marouf, and the Vice Deans of participating colleges, top executive cadres and faculty members.

The evaluation committees reviewed the displayed posters, finalizing top ranking posters, and nominating the Posters winners enlisted alongside:

Winners of Scientific Posters Events, 2016

I. Humanities Posters Winners, 2016

Category I: Faculty Members

- **Dr. Abdullah Aldousari**, Geraldine Henderson & Elizabeth Hirschman
Department of Management & Marketing,
Faculty of Business Administration

Title of research

"Perceived threat and its impact on consumer behavior."

- **Dr. Suha Al-Awadhi** & Dr. Malak Al-Rushaid
Department of Library & Information Science,
Faculty of Social Sciences

Title of research

"The use of social network in government for building social capital, social inclusion and social equality."

- **Dr. Bader Al-Hashil** & Dr. Mohammad Al-Marzouq
Department of Finance & Financial Institutions,
Faculty of Business Administration

Title of research

"Republican managers and innovation."

Category II: Teaching Assistants

There were no Winners in this category due to lack of nominees.

Category III: Graduate Students

- **Huda Haidar Al-Rasheed** & Dr. Naif Al-Shammeri
Department of Economics,
Faculty of Business Administration

Title of research

"FDI and economic growth in the Arab Region: The case of knowledge spillover effects."

- **Khadiga Al-Rasheedi** and Dr. Abdulmuhsin Al-Qahtani
Department of Educational Administration & Planning,
Faculty of Education

Title of research

"Politeness and power in school board meetings: A qualitative study of selected public schools in Kuwait."

- **Hissa Al-Furaih**
Department of Private Law,
Faculty of Law

Title of research

"What makes regulation "good regulation?"

II. Sciences Posters Winners, 2016

Category I: Faculty Members

- **Dr. Mohammad Hassan**, Prof. Saad Makseed, Mona Shalabi, Basma Ghazal & Ahmad Abdulnatheer
Department of Chemistry,
Faculty of Science

Title of research

"Highly fluorinated copper phthalocyanine for potential use in dye-sensitized solar cells (DSCs)"

- **Prof. Ali Bumajdad** & Tasneem Saleh
Department of Chemistry,
Faculty of Science

Title of research

"The role of Carbon Black-supported Au and Ag nanopar-

ticles as Electrocatalysts for the Reduction of CO₂ to CO."

- **Dr. Sohrab Zendejboudi**
Department of Chemical Engineering,
Faculty of Engineering & Petroleum

Title of research

"CO₂ storage using ex-situ process: Energy and environmental applications."

Category II: Teaching Assistants

- **Eng. Dana Al-Rabeeia**, Eng. Hala Al-Fulaij & Dr. Hisham El-Touny
Department of Chemical Engineering,
Faculty of Engineering & Petroleum

(Contd. P.24... ►)

Winners of Research Rewards Incentives

The Tenth (X) consignment of the Distinguished Research Series is attributed to wide coverage and dissemination of the outstanding attainments of winners of Research Rewards incentive, for having achieved international recognition and scientific acclaim for their published research, appearing in high ranking, JCR listed journals with an impact factor, as well as for excellence in project final report. The rewards incentive marks RS sustained efforts towards promoting the culture of quality and credibility in faculty research, as a step towards elevating Kuwait University's international profile and standing through distinguished research. This purpose underlies RS efforts towards motivating faculty members to strive for innovation and originality in their research endeavors, and find scientific solutions to contemporary global, national and human concerns. The launching of the research rewards stimulus was directed at promoting value added research, the quality of which was measurable through the universal JCR assessment model, which is being applied by RS in rating the *quality*, *impact* and *integrity* of KU published research. The research rewards incentive is, therefore, an encouraging opportunity for faculty members to vie for international recognition and attention through sheer merit and quality of their research.

A steady increase in KU published research, appearing in prestigious international JCR indexed journals, amply demonstrates the effectiveness of incentives stimulus, with statistics showing a total of 3316 publications both from Funded and Unfunded research enlisted during the last five years. Of these, 70.5% (2338) papers appeared in JCR listed Q1 to Q4 journals, and 29.5% (978) in unrefereed or "no impact" journals, showing significant decline in papers appearing in unrefereed journals, from 218 papers in 2010 to 89 papers in 2014. This decline exhibits faculty members increased diversion towards high impact JCR journals, boosting the quality index in KU's published research.

This dynamic shift in faculty members preference for high impact journals is attributable to the key role of rewards stimulus, considering that by mid-March the rewards beneficiaries had reached a total of 406 winners over a six years (2010-2015) period, since the launch of the incentives rewards. Of the rewards winners, 134(33%) achieved scientific distinction based on their *Funded* research, 178(43.8%) for *Unfunded* research, and 90(22.2%) for achieving excellence in *Project Final Report*. In addition, 4 (1%) researchers received incentive rewards for their Funded Research Projects, a new rewards category instituted by RS in 2014, for promoting distinguished research.

The Distinguished Research Series brings forth the scientific attainments of KU's research rewards winners, spreading awareness on their outstanding research findings generated through funded or unfunded research, as well as for excellence in project final report. For readers information, standard regulations govern the system of research rewards, specifics of which are outlined in the RS Research Support manual. As per regulations, a reward of KD 1000/- is awarded to author(s) of distinguished research, published in top 25% of the international journals with impact factors evaluated according to the Journal Citation Report (JCR) in the concerned scientific field. For unfunded research, an award of KD 1000/- is given to the researcher or all researchers (in multi-authorship paper) for each published research in top 25% of the international journals with impact factor evaluated as per the Journal Citation Report (JCR) standard in the concerned scientific field. RS also grants an award of KD 500/- to the PI for each project Final Report of funded research that achieves "Excellent" rating from external referee for the scientific and humanities faculties. In addition, a financial reward of KD. 4000/- is awarded to a faculty member once per project, provided the project's scientific output is published in top 25% (Q1) journals, rated as per the Journal Citation Report (JCR) in the scientific field of the candidate.

Within this regulatory frame, **Distinguished Series X** highlights distinguished research accomplishments of four research reward winners, enlisted under various rewards categories. These include summary reports of two reward recipients for funded research, one winner for unfunded research, and one beneficiary of project final report, as follows:

1. **Prof. Saad Makhseed (Funded Project SC03/08)**, Department of Chemistry, Faculty of Science. Reward awarded for the paper entitled, "Microporous organic polymers incorporating dicarboximide units for H₂ storage and remarkable CO₂ capture," published in *Journal of Materials Chemistry A*, 2013, 1: 13004-13010.
2. **Prof. Adel Aladwani (Funded Project IQ02/14)**, Department of Quantitative Methods & Information Systems, Faculty of Business Administration, Reward awarded for the paper entitled, "Corruption as a source of e-Government projects failure in developing countries: A theoretical exposition," published in *International Journal of Information Management*, 2016, 36(1): 105-112.
3. **Dr. Ali Kanso (Unfunded Research)**, Department of Mathematics, Faculty of Science. Reward awarded for the paper entitled "A structure-based chaotic hashing scheme," published in *Journal of Nonlinear Dynamics*, 2015, 81: 27-40.
4. **Prof. Fawaz Al-Anzi (Project Final Report – EO05/11)**, Department of Computer Engineering, Faculty of Computing Sciences & Engineering. Reward awarded for the Project Final Report entitled, "Cross layer secure and resource aware routing protocol and intrusion detection for wireless mesh networks."

FUNDED RESEARCH

Introduction

Summary

Introducing the concepts of rigidity and contorted molecular structure as a prerequisite for the synthesis of polymers with intrinsic microporosity (PIMs), a number of anthracene based polymers comprising imides-linkage moieties were prepared by using the dibenzodioxane-forming reaction as depicted in scheme 1. The gas sorption experiments indicate that an irregular rigid monomer containing imide functionality (bismaleimide structure) can create porous organic material with high surface area and enhanced gas storage capacities. The adsorption/desorption isotherms at 77 and 87 K (Fig. 1) for the AMP-3 with a maximum hydrogen adsorption capacities up to 1.9 and 1.43 wt.% respectively. These good hydrogen adsorption and outstanding carbon dioxide uptake capacity which can be explained by the high concentration of narrowly distributed and fine-tuned sub-nanometer pores along with the better interaction with accessible sur-

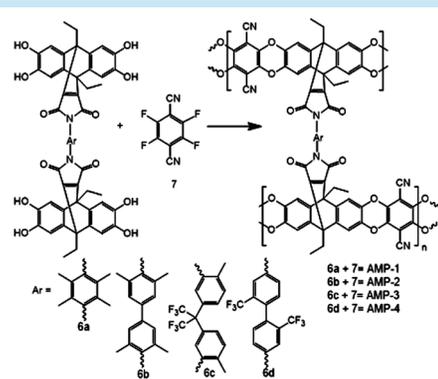
Microporous organic polymers incorporating dicarboximide units for H₂ storage and remarkable CO₂ capture

Saad Makhseed and Jacob Samuel

Dept. of Chemistry, Faculty of Science

Kuwait University

(Project No. SC03/08)



Scheme 1. Synthesis of microporous polymers (AMPs).

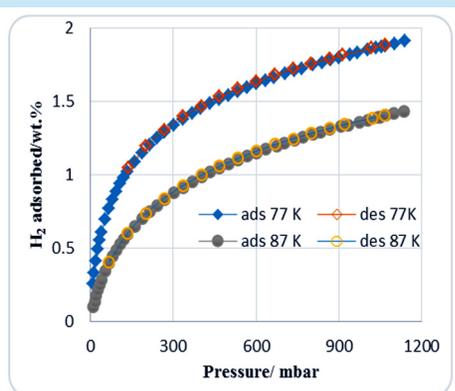


Fig. 1 Hydrogen sorption isotherms of AMP-3 at 77K and 87K

faces featured by imide functionality, leading to higher isosteric heat of adsorption (Q_{st} H₂ 7.4 kJ/mole; Q_{st} CO₂ 32 kJ/mol). A competitive CO₂ storage results with other recently reported organic adsorbents have been also recorded for such materials at 295 K/40 bar to reach the maximum 15.61 mmolg⁻¹ for AMP-3. These uptake values are very promising and

higher compared to other recently reported organic microporous polymers and some nitrogen-rich materials.

Acknowledgements

The authors thank Kuwait University for funding (SC03/08) and the technical support of GF-S (GS01/01, GS01/05, GS01/08 & GS03/01) and Nanoscopy Science Center.

“Corruption as a Source of e-Government Projects Failure in Developing Countries: A Theoretical Exposition”

Adel M. Aladwani

*Dept. of Quantitative Methods & Information Systems,
Faculty of Business Administration, Kuwait University*

(Project No. IQ02/14)

While the literature has touted e-Government as a tool for combating corruption, no study has discussed so far how corruption could influence e-Government

project failure. This article tries to fill part of this void in past research by proposing a contextual framework that highlights the role corruption plays in stimulating the

failure of e-Government projects in developing countries. Informed by prior relevant literature on general systems, organizational information processing,

(Contd. P.16... ▶)

UNFUNDED
RESEARCH*Extended Abstract*

Cryptographic hash functions are essential tools in information security applications. A cryptographic hash function is a one-way algorithm that compresses an arbitrary length message M into a fixed-length output $H(M)$, referred to as hash value, message digest, fingerprint, checksum, or tag. In a security setting, the hash value $H(M)$ must be highly dependent on its input message M and any parameters of the hashing process. This includes sensitivity of the hash value to the secret key in case of a keyed hash function.

Hashing dates back to the 1950s, and ever since a large number of hashing schemes have been designed and analyzed. The most commonly used hashing schemes are the Message-Digest algorithms (MD4, MD5) and the Secure Hash Algorithms (SHA-0, SHA-1 and SHA-2). It is known that MD4, MD5, SHA-0, SHA-1 and SHA-2 suffer security flaws. Recently the National Institute of Standards and Technology (NIST) declared the Keccak sponge function fam-

ily as SHA-3. Although SHA-3 does not suffer the weaknesses of SHA-1 and SHA-2, it has been scrutinized by third-party cryptanalysis. This highlights the need for continued research on development and analysis of new hashing schemes.

Conventional hashing schemes, including the MD and SHA families, rely on complicated algorithms based on techniques such as logical operations, modular arithmetic, multi-round iterations of existing cryptosystems, etc. to achieve security. Alternatively, a number of hash functions employ chaotic maps to achieve security. Because of their characteristics such as their high sensitive dependence on initial conditions and control parameters, random-like behavior, ergodicity, etc. chaotic maps are deemed as attractive tools in security applications including hashing. In particular, they offer a simple structure as an alternative to the complicated algorithms conventionally used. Similarly to the non-chaotic approach, some chaos-based hashing schemes have

been subject to cryptanalytic studies revealing security weaknesses in them.

In this paper, we propose a new chaotic keyed hashing scheme based on the structure of the input message. The structure of the message is identified with maps of the appearances of each character throughout the input message. The chaotic nature of the orbits of a 2-dimensional generalized cat map is used to introduce randomness to the computation of the hash value and hence facilitate uniform sensitivity of the hash value to the input message and the secret key. Our proposed hashing scheme is fast, efficient and flexible. Empirical results verify the high sensitivity of the proposed hash function to the input message and the secret key. Further simulations presented demonstrate the strong capability of the proposed scheme for confusion, diffusion, and collision resistance. Compared with existing schemes, especially those based on chaotic maps, the proposed scheme is shown to have superior performance. ■

► *Corruption as a Source ... (From P. 15)*

corruption, as well as e-Government, the proposed framework argues that the prevalence of corruption in developing economies could restrict moral and governance capabilities of administrative

systems overseeing e-Governments in a way that could lead to the failure of these entities to produce initiatives that meet stakeholders' expectations.

This theoretical study discusses

this idea and underscores the value of the suggested framework for guiding scientific inquiries into this important topic and helping the public officials interested in planning, managing, and auditing e-Government initiatives. ■

FINAL REPORT

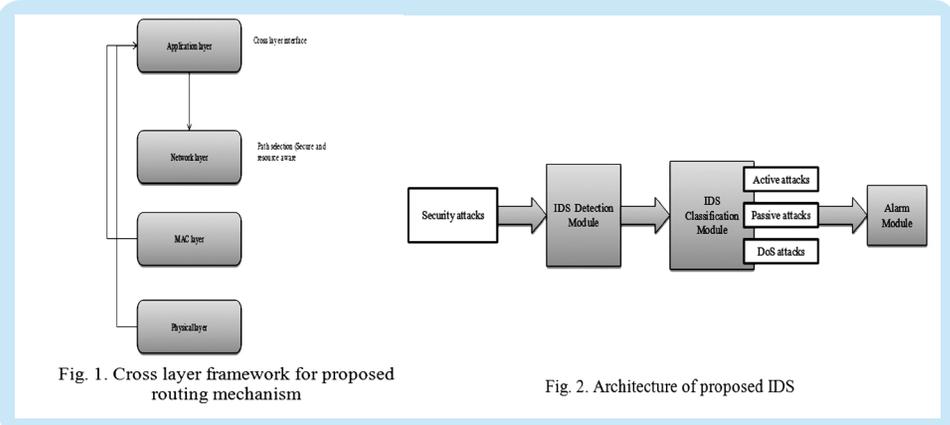
Cross layer Secure and Resource Aware Routing Protocol and Intrusion Detection for Wireless Mesh Networks
Prof. Fawaz S. Al-Anzi, Dr. Ayed Salman & Dr. Shafiullah Khan
 Dept. of Computer Engineering,
 Faculty of Computing Sciences & Engineering,
 Kuwait University
 (Project No. EO05/11)

In wireless networks with centralized monitoring policy, it is quite easy to detect and eliminate intrusions efficiently. However, when we address wireless scenario especially in multi hop wireless network, intrusion activities are more because of lack of centralized monitoring policy. Wireless networks are very much vulnerable to different kinds of attacks and intrusions at different OSI layer due to mainly co-operation among their nodes. Intrusion detection is the most fundamental component of defense in depth strategy, and it is capable to identify security attacks and raise an alarm to inform authorities. Intrusion detection system, as a passive defense strategy, informs about attacks to network administrator since attacks can be easily introduced in a wireless network. Intrusion detection system can be considered as a second line of defense. Many IDSs are proposed in literature that is capable to detect attack in particular layer of OSI model. In this project, we introduced a cross layer IDSs approach in which it is possible to detect multiple layer possible attacks.

The objectives of the project are to provide security mechanisms for wireless mesh networks against three types of security attacks such as Passive attacks, active attacks and Denial of Service (DoS) attacks using cross layer approach as:

1. Cross layer secure and resource aware routing protocol for wireless mesh networks

The design and development of a new cross-layered routing protocol, which would not only be secure, but also resource aware. This routing protocol ensures security and takes care of the limited resources of wireless



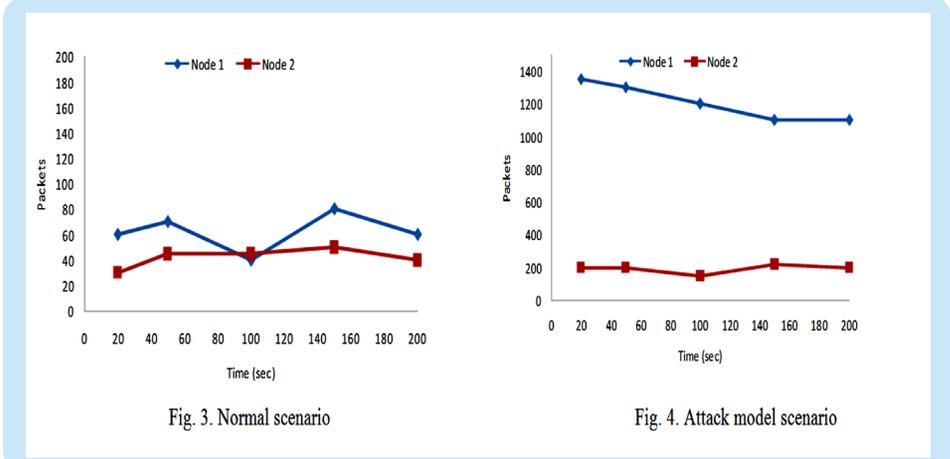
mesh networks. We successfully exchanged parameters from MAC layer and network layer for optimization process. In our routing protocol, the cross layer interface is designed at application layer. The framework is given in Fig. 1.

2. Cross layer Intrusion Detection System

Cross-layer intrusion detection is designed to take care of overall security of Wireless mesh networks. The intrusion detection system has the capabilities of both anomaly-based detection and signature based detections.

The architecture of proposed IDS is given in Figure 2. We successfully generated two types of scenarios using NS-2: Normal scenario, and Attack model scenario. These scenarios are generated to see packet flows in both scenarios. Normal scenario and attack model scenario are presented in Fig. 3 and 4.

The results show that packet flow is highly increased in case of security attack against wireless (Contd. P.22...)



OVPR'S LATEST PUBLICATIONS

OVPR's publications an essential via-media for transmission of strategic information on institutional research *policies, programs* and *procedures* for global outreach

An extensive line-up of upcoming documents reflect the vibrancy of RS publications program



OVPR's publications key drivers in spreading awareness on institutional research developments, & promoting KU's international profile & presence

OVPR's Publications Program is crucially linked to the integration of core information on Research Sector's (RS) *policies, programs* and *procedures* for the development of scientific research at Kuwait University (KU). This purpose provides the fundamental basis for generating key documents, harboring critical information on research support rules and regulations governing the award of grants to faculty members, outlining institutional strategy for scientific advancement, and laying the mechanism for enhancing KU research visibility through appropriate global platforms.

The conceptual basis for the preparation of RS publications is inherent in this overriding need to meet the researchers requirements, provide vital information to experts, executives and policy-makers, enabling the wider society, institutions, external partners, and global scientific community to keep pace with latest advances in KU research, while unfolding opportunities available for scientific collaboration and joint studies. These fundamental needs

spell the institutional gross dependency on a wide-array of source documents for faculty members' reference needs, and for keeping the global scientific community informed and updated on KU research developments and accomplishments through key publications, generated in a year-round cycle of production activity. This dynamic frame keeps the RS publications channel in full operational steam for generating critical documents, which during the current academic year 2015/16, resulted in a series of newly released publications including, February/March 2016 issue of the OVPR Research Newsletter, 21st & 22nd edition of the Sponsored Research series highlighting faculties research activity during the academic years 2011/12 and 2012/13, Scientific Posters Booklets for humanities and sciences posters events, held on March 21 & 28, 2016, respectively, as well as monumental printing of 158 scientific posters in-house for meeting crucial deadlines.

Alongside, progressed miscellaneous scientific and publicity requirements of several events hosted by RS (RIG, UK-

KU scientific collaboration, Posters announcements, guidelines & templates, invitations, and posters technicalities, etc.), further intensifying the production momentum, with simultaneous progress in the preparation of new documents, lined-up for the year ahead, and beyond.

Essentially, the publications process is a network of activities, involving *information aggregation, analysis, editing, translation, designing* and *technical production* of upcoming RS documents, several of which are currently in advanced production phase. These under-production documents include, the July 2016 edition of OVPR Research Newsletter, 23rd & 24th edition of the Sponsored Research series, integrating faculties research activity during the academic years 2013/14 & 2014/15, Guide to Subject Areas, 2016/17, both in electronic and print formats, Research Support Rules & Regulations, 2016/17, Intellectual Property & Patents By-laws, 2016/17, RS Annual Report, 2015/16, etc., collectively providing the outlook of publications earmarked for release ahead in sustained continuity, in-keeping with

► *OVPR Publications released...(From P. 18)*

RS developments, initiatives, priorities, ongoing programs, updates, publicity and advances in institutional research.

Beyond the RS publications agenda, the production vitality is also a hallmark of OVPR's other constituent offices, the Academic Publication Council (APC), and Center for Gulf & Arabian Peninsula Studies (CGAPS), responsible for generating KU's scientific journals, research reports, abstracts, historic series, books and magazines, released periodically, and distributed extensively, as well as figuring in international databases. Given these requirements, presented here is a consolidated summary view of the latest documents released by each of the OVPR's constituent offices (RS, APC and CGAPS) during the period February through June 2016, descriptive details of which are outlined below:



RS Publications an enduring channel for enhancing KU's research visibility through appropriate global platforms

1. Research Sector (RS) Publications (February 2016 to June 2016)

● **OVPR Research Quarterly Newsletter, Jan./Feb 2016** -- Released in March



2016, OVPR's Research Quarterly Newsletter featured major events, activities and happenings during the period February through June 2016, with an adequate coverage of the New Vice President's message, sharing his vision and setting the path for research development at Kuwait University. An analytical feature on Research Sector's accomplishments during the academic year 2014/15, highlighted major events, activities and developments in institutional research. The focus was also on collaborative agreement signed with Ministry of Youth Affairs, RS hosting the annual RIG 2015 orientation session for new

faculty members on the research support system and facilities available for pursuing scientific research, the Vice President's participation in UK-KU Research and Science Collaboration Symposium, as well as nuclear applications symposium. Key elements of KU-MIT joint project on desalination system was featured, and annual multi-awards ceremonial event for honoring the winners of researchers' awards, graduate students project prize, and recipients of US registered patents was covered. The 9th consignment of Distinguished Series presented summary of outstanding accomplishments of the next four winners of incentive awards for outputs generated from funded, unfunded research, and project final report, and an analytical feature provided annual statistical outlook of faculty research activity during the academic year 2014/15. A feature on RS publications released during the period June. 2015 to January 2016 provided an insight into key documents

on research policy, programs, reports, awards and rewards, consolidating RS activities and progress, reflecting the prevailing scientific dynamism. For readers' information, Research Quarterly Newsletter, Feb./March 2016, was released, distributed, and displayed on OVPR website: (<http://www.ovpr.kuniv.edu>). Published & Released (*English and Arabic*).

● **RS Annual Report (2014/15), February 2016** – Released in February 2016, RS Annual Report presents a summarized



view of the Research Sector's activities and accomplishments during the academic year 2014/15, including RS new mission and strategy, within the framework of KU's global vision and aspirations. The analytical report outlines RS faculty research developments in terms of ongoing, completed and under-process projects, highlighting the growth momentum, priority and joint research activity, research outputs, productivity, quality and impact. As regards collaborative research, RS signed new agreement with KOC, and three projects registered under the new grant support category of Specialized Research Units & Laboratories (SRUL). A statistical outlook of faculties research performance over the last 15-years was presented, consolidating faculties published research from funded research, included in high ranking, JCR listed journals with an impact factor. Also, vital information integrated on winners of research reward incentives, researchers awards, top ranking scientific posters, and patents recipients, and progressive view of KU Research Park's virtual phase covered. The report duly recorded key events hosted, such as RIG session, annual scientific posters events for sciences & humanities sectors,

(Contd. P.20...►)

► **OVPR Publications released...(From P. 19)**

including in-house printing of 103 posters displayed. The report documented major RS publications prepared, printed and released during the year and updating of the OVPR/RS websites. Also included were the visitors and visiting delegations received at the Office of Vice President Research, and reflections on the decision making process, governance, resource and research management. Overall, RS accomplishments during 2014/15, provided a progressive view of scientific research at KU, setting priorities and future path of research development at Kuwait University. The document was printed in-house, released, and posted on OVPR website for wide access. Published & Released (*English and Arabic*).



● **Sponsored Research 2011/12 & 2012/13 (21st & 22nd Edition)**

– The 21st & 22nd edition of the Sponsored Research series was released in March 2016, integrating two-years data on faculty research activity during the academic years 2011/12 & 2012/13. The document enlists all ongoing and completed projects by faculties and departments, and presents each active project awarded to faculty members by Grant No., project team, research title, starting date, duration and budget allocated. A special new element added to the document was the inclusion of projects completion date. The document also enlists projects by types of grants, reflecting on wide-ranging themes and areas of research being actively pursued across the faculties. The document is organized in three major sections, with Section - I focused on all KU sponsored projects, including types of grants, Section - II presents jointly funded projects in collaboration with external institutions, and Section – III

integrates data on graduate students research. The document also includes statistics on faculty research, as well as provides a comprehensive listing of all researchers in the Researchers Index, classified alphabetically, along with Page Nos. providing rapid access to any researcher's project enlisted anywhere within the document. Providing a comprehensive outlook of faculty research, the document is a handy reference on institutional research activity during the two-year span, with an analytical dimension that carries forward the Sponsored Research series, updating existing database, spanning over 25 years of faculty research activity at Kuwait University. Published & Released (*English and Arabic*).

● **Scientific Posters Booklets for Humanities and Sciences faculties, 2016**

– Released as two documents in March 2016, marking RS annual Humanities and Sciences Posters day events on March 21, and 28, 2016, these documents present a miniature view of all posters displayed at the two events in image format, reflecting the contemporary scientific interests, broad areas and research subjects being researched across the faculties during the year.



a. **The Humanities & Social Sciences Posters Booklet, 2016**

profiles research activity of the six-faculty humanities cluster, collectively displaying 60 posters, and reflecting on latest research work of faculty members, teaching assistants and graduate students from the faculties of Arts (3), Business Administration (15), Education (12), Law (3), Sharia & Islamic Studies(10), and Social Sciences (17). The document provides ready reference to latest research developments

and scientific interests of humanities and social sciences faculty members, including ongoing interdisciplinary research being pursued across the humanities sector.

b. **The Scientific Faculties Posters Booklet, 2016**

covers a wide spectrum of research activity beyond the sciences faculties input by including the work of participants from Kuwait Institute for Scientific Research (KISR), displayed alongside the presentations of KU's mainstream sciences faculties. Collectively, the document brings together research creativity of five scientific faculties, and KISR's research, in a massive display of 98 posters, reflecting latest research activity of KU faculty members, teaching assistants and graduate students, and external participants from KISR, with displayed posters unveiling wide-ranging disciplinary streams and scientific interests of contemporary and global significance. Aggregating all posters displayed at the Sciences posters event, the document exhibits scientific creativity of the faculties of Architecture (1), Computing Sciences & Engineering (10), Engineering & Petroleum (24), Life Sciences (11), Science (39), and KISR (13), highlighting latest research developments and prevailing scientific dynamism across the sciences faculties during the year 2015/16.

Both scientific posters documents (a. & b.) were released in March 2016, providing comprehensive and compelling view of displayed research at Kuwait University, marking the RS annual posters events. The documents were generated in-house, and consolidate exact replica of the posters displayed in miniature format, preserving the scientific work, and providing vital reference to scientific themes researched at Kuwait University during the academic year 2015/16. Both posters documents aim at providing handy reference to faculties and the research com-

► *OVPR Publications released...(From P. 20)*

munity and are accessible on OVPR website. Published and Released (*English and Arabic*).

II. Academic Publication Council (APC) Publications (Feb. 2016 to June 2016)

The Academic Publications Council (APC) maintained its production momentum, with a regular release of latest editions of Kuwait University scientific journals, providing the researchers a whole new series of articles and studies accomplished in diverse scientific fields. The following new issues and editions of Journals were released by the Academic Publications Council during the period February 2016 through June 2016:

Journals released (Latest Issues released during the period February 2016 to June 2016.)

- *Journal of Gulf & Arabian Peninsula Studies*, Vol. 42, No. 60, January 2016.
- *Annals of Arts and Social Sciences*, Vol. 36, December 2015.
- *Annals of Arts and Social Sciences*, Vol. 36, March 2016.
- *Journal of Sharia and Islamic Studies*, Vol. 30, Issue 103, December 2015.
- *Journal of Sharia and Islamic Studies*, Vol. 31, Issue 104, March 2016.
- *Journal of Law*, Vol. 40, No. 1, March 2016.
- *Arab Journal for the Humanities*, Vol. 34, No. 134, Spring 2016.

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

The Center for Gulf and Arabian Peninsula Studies (CGAPS) continued to carry forward its programs and



information resources, releasing latest source documents and publications, as follows:

A. Registry of Current Events in the Gulf & Arabian Peninsula Region:

The document monitors and registers current events in the Gulf and Arabian Peninsula region, and has released the 65th edition of the current events record, detailing events that occurred in the Gulf and its neighboring regions. The current events record is a periodical, published four times in a year by the Center, with the latest issue including 10 chapters on multiple topics.

B. Special Issues Series:

A refereed scientific series, the document is based on specialized research, with CGAPS releasing the outcomes of a study on “*The Challenges of National Identity based on a sample of Kuwait University students*,” while its latest release documents recommendations of the seminar on “*Childhood Issues in contemporary society*,” as follows:

- CGAPS latest release includes a report highlighting several recommendations of a seminar on “*Childhood Issues in Contemporary Society*.” The two-day seminar

included 10 lectures, addressing aspects of childhood in contemporary society, focusing on societal, cultural, psychological, educational, and health issues related to children.

- “*The Challenges of National Identity and Sense of National Belonging in a sample of Kuwait University Students*,” a study that discussed various political and social issues related to national identity. The study was conducted on a sample of students from Kuwait University, raising the issue of loyalty in the era of globalization and media influence, as well as post modernism. The study is the 34th documentation under the special scientific studies series, released periodically by the CGAPS.

C. Series of Conference & Symposia Proceedings: This series documents CGAPS seminars and conferences.

D. Volumes of Selected Documents of the Gulf & Arabian Peninsula Region and its Vicinity:

These volumes aggregate important documents issued by formal bodies in the Gulf Region, and highlight the Region’s current political, economic, social and cultural events.

E. M.A. and Ph.D. Dissertation Abstracts:

This document presents abstracts of Master’s and Ph.D. dissertations.

(Contd. P.22...►)

► **OVPR Publications released...(From P. 21)**

with CGAPS releasing Number 19 of the Abstracts Series, entitled “*The influence of the Political Leader’s ideology in the Formulation of the Country’s Foreign policy – Case Study: President George Bush.*” The dissertation discusses influence of the country’s foreign policy at various levels and areas, based on a case study, focusing on President George W. Bush”. The Dissertation also discusses method of decision making, international relation scenarios, and foreign policy issues in political decision making.

F. Guide to M.A. and Ph.D. Dissertations in the Gulf and Arabian Peninsula Region:

This guide outlines information on M.A. and Ph.D. dissertations and authors, with a focus on Gulf and Arabian Peninsula region, by either Kuwait University staff, or GCC universities. The guide is released in two volumes, documenting M.A.

and Ph.D. Dissertations.

In addition to the above publications, an extensive line-up of upcoming publications further define the vibrancy of publications program, exhibiting RS gross reliance on a series of descriptive and analytical documents, profiling the institutional scientific mission, policy and research activity, while providing the essential via-media for the transmission of authentic and reliable information on institutional research developments, and opportunities for scientific advancement.

The OVPR’s Publications Program is precisely centered on this strategic mission, creating an enduring reservoir of scientific information, and overseeing the generation of policy and procedural documents on institutional research programs and activities for global readership. RS documents are thus the key drivers in spearheading awareness on institutional research developments, and promoting KU’s

international presence, profile and visibility. Given this context, RS recently released documents, add a further dimension in enhancing KU’s global standing and stature. Essentially, the urgency of publications is an enduring requirement of RS strategy for globalizing institutional research, with publications being a dynamic mode for the sustained outflow of research-related information, presenting developmental outlook of institutional research advances and accomplishments, the empirical documentation of which continues to enrich the content and value of OVPR’s publications, significantly boosting institutional presence and prestige on the global platform.

For readers information, RS publications are widely distributed, hardcopies are available on request, web-users may access publications electronically on OVPR/RS websites, with downloading options (<http://www.ovpr.kuniv.edu>) & (<http://www.ovpr.kuniv.edu/research>).

► **Distinguished Series-10 -- Final Report, Cross layer Secure ...(From P. 17)**

mesh network. Currently, we are working design specialized attacks simulations and to observe the detection rate of our proposed intrusion detection system against a variety of security attacks. Furthermore, we are investigating to get false negative and false positive ratio (simulation results) of the proposed mechanism as a future research extension.

Scientific productivity

All results of cross intrusion detection system for wireless mesh networks are generated. All results of cross layer secure routing protocol for wireless mesh networks are generated. We wrote a scientific article and got it published in Q1 ranked journal. The following are the produced papers from the research project:

Journal Papers

- F.S. Al-Anzi, A.A. Salman, S. Khan, “Intrusion Detection System for Wireless Mesh Networks using Cross Layer Approach”, Accepted for publication in Journal of Computer-Mediated Communication (Q1 Journal).

Conference Papers

- F.S. Al-Anzi and S. Khan, “Wireless Mesh Network Cross-Layer Intrusion Detection”, 2nd International Conference on Computational and Network Technologies 2014, 2-4 December, 2014, Bali, Indonesia.
- F.S. Al-Anzi and S. Khan, “Intrusion Detection in Cross-Layers of a Wireless Mesh Network”, IEEE International Conference on Frontiers of Information Technology – FIT 2014, 17 -19 December, 2014, Islamabad, Pakistan (Invited Speaker).

The research project has successfully met its expected outcome as explained in the initial project proposal.

ACKNOWLEDGEMENT

The authors extend their appreciation to the Office of the Vice President of Research at Kuwait University for sponsoring this research. The work is completed as a part of the research project # EO 05/11. We would like to thank the Research Administration for their support for this project and look forward to explore more research problems in future under their support.

**GRADUATE STUDENTS
PROJECT PRIZE**

**RS announces Graduate Students Project
Prize winners for academic year 2015/16**

Five graduate students bag this year's project prize for scholarly accomplishments in the sphere of Doctoral and Master's level research

In continuing its annual round of activities concerning meritorious accomplishments of Graduate students research, as part of their Master's and Ph.D. programs, the Research Sector (RS) identified winners of the Graduate Students Project Prize for the academic year 2015/16, based on application of established procedures. In principle, the potential winners must exhibit exceptional talent and creativity in their research endeavours, to be counted as nominees for the prize. The process is initiated by inviting faculties to submit graduate students nominations for the project prize, on grounds of the graduate students scientific creativity. As per regulations, all applications received from the faculties are subjected to standard review process against a set of criteria,



Graduate awards aimed at bolstering scientific thinking and creativity among postgraduate students

which eventually leads to short-listing of the award winning entries.

The recommended list of nominees for the Graduate Project Prize was approved and endorsed by the Vice President for Research, Prof. Taher Al-Sahhaf, paving the way for announcing the winners of year 2015/16 Graduate Students Project Prize, in recognition of their scholarly Master's and Doctoral level research in basic & applied sciences, and in arts & humanities. For all practical purposes, the graduate awards signify RS efforts in spotting the graduate students talent and innovative potential as a step towards nurturing the future re-

searchers and scientists of tomorrow, an obligation that falls within the purview of RS long-term commitments in bolstering scientific thinking among postgraduate students, and developing their aptitude towards the values of scientific discovery through research creativity.

This year, the graduate project prize awardees were both from the Ph.D. and Master's programs, having topped the qualifying criteria for excellence in their thesis work. In all, five students won the recognition for their meritorious efforts in the broad fields of basic & applied sciences, and in arts & humanities streams. The winners were spread over the faculties of Medicine, Arts, Education and Law. For RS, the prize winners demonstrated the inherent value and virtue of the Graduate awards, through their postgraduate research endeavours, leading to meritorious thesis work. Essentially, this ultimate objective would continue to dominate RS drive towards identifying the prevalence of exceptional talent and scientific inclinations among the Master's and Ph.D. students, for which the Graduate Students Project Prize tends to serve as a key facilitator, in identifying talent in diverse disciplines of postgraduate research.

Indeed, the prize serves as a motivating factor, encouraging students to be competitive in exhibiting quality and excellence in their thesis work, eventually qualifying them for being the potential nominees for the RS annual Graduate Project Prize. It is precisely within this frame, the 2015/16 winners of the Graduate Project Prize, as announced, are enlisted overleaf;

For Ph.D. Research

Winner(s) in Basic & Applied Sciences

1. **Samar Salim Buswaihi**
Dept. of Microbiology, Faculty of Medicine

For Master's Research

a. Winners in Basic & Applied Sciences

1. **Eman Mansour Fayed**
Dept. of Anatomy, Faculty of Medicine

b. Winners in Arts & Humanities

2. **Dina Abdullah Ouda**
*Dept. of English Language & Literature,
Faculty of Arts*
3. **Lulwa Abdulsalam Al-Buaijan**
*Dept. of Public Law,
Faculty of Law*
4. **Najla Ghasham Al-Azmi**
*Dept. of Education Origins,
Faculty of Education*

► Scientific Posters Awards Winners...(From P. 13)

Title of research

"Eulerian-Eulerian CFD modeling of MSF Demister."

Eng. Hala Al-Fulaij and Dr. Hisham Ettouney
Department of Chemical Engineering,
Faculty of Engineering & Petroleum

Title of research

"Stability and dynamics of MSF – gPROMS Simulation."

Sameera Al-Akhawand and Maryam Al-Asousi
Department of Food Science & Nutrition,
Faculty of Life Sciences

Title of research

"The impact of nutrition education on the dietary habits of food science and nutrition students in Kuwait University."

Category III: Graduate Students

Tasneem Al-Rashid, Prof. Rao Divi
Department of Earth & Environmental Sciences,
Faculty of Science

Title of research

"Geostatistical analysis of reservoir parameters at drill-holes & Robust estimation for the entire Minagish oil field, Kuwait."

Nada Mohammad Salem

Department of Biological Sciences,
Faculty of Science

Title of research

"Antibacterial activity of the synthesized gold nanoparticles (GNP's)."

Ikhlas Mohammed and Jamillah Zamoon

Department of Biological Sciences,
Faculty of Science

Title of research

"Conformational switch of the cytoplasmic domain of hRAGE upon self-association using fluorescence spectroscopy."

Dalal Al-Bannai, Dr. Nedaa Al-Sarraf,

Dr. Narjes Dashti
Department of Biological Sciences,
Faculty of Science

Title of research

"Isolation and characterization of plant promoting growth halophilic bacteria from the rhizosphere of Tamarix aucheriana in Kuwait salt marshes."

NEW GUIDE TO SUBJECT AREAS

Faculties invited to submit updated lists of subject areas relevant to their respective programs and disciplinary streams

RS critically involved in generating the next, more advanced & comprehensive edition of Guide to Subject Areas, 2016/17



First edition of Guide released in early eighties So far, Seven editions of the Guide have been generated (1988, 1995, 2000, 2005, 2008, 2014)

The Research Sector (RS) has initiated the process of generating next, more comprehensive and advanced edition of *Guide to Subject Areas, 2016/17*, in response to faculties expanding research interests, new programs and disciplinary requirements, not represented in the previous edition of the Guide (2014). The preparation of new Subjects Guide critically stems from this fundamental need, requiring legitimate classification of new areas identified by respective faculties and departments, within the broad scientific fields, thus offering far wider choice of subject areas to researchers in the selection of area-specific codes applicable to their research interests and activities.



New Guide

Essentially, this purpose provides the basis for RS to periodically transform the Subjects Guide in-keeping with institutional developmental requirements, establishment of new

Next Eighth edition of the Guide to provide far wider choice of Subject Areas to researchers

faculties and departments, and launching of new programs at KU, opening new academic cor-

NEW PATENTS RECIPIENTS

New discoveries add a significant dimension to the quality and value of institutional research

Having covered 10 years of sustained services to the scientific community in facilitating registration of their breakthrough research, the Research Sector (RS) gained additional mileage in enlisting *seven new recipients* of US registered patents, during the year 2015/16, in recognition of their distinguished research. Ever since the provision of patent registration services were made available to the faculty research community, the RS Patents Office is rigorously involved in processing applications received from potential innovators and inventors seeking registration of their patentable outputs and products of discovery. The Patent Office came into existence at the Office of Vice President for Research (OVPR), with the Presidential Decision No. 856, dated April 30, 2005, for establishing an entity, responsible for developing a system that would protect researchers *intellectual property rights* and facilitate registration of their scientific discoveries and inventions.

RS enlists *seven new recipients* of US registered patents during 2015-2016, for their breakthrough research



Since 2010 until mid-2016, 34 researchers have won US licensing rights for their scientific innovation and inventions

A set of bylaws, articles and clauses govern the patent registration process at KU

Consequently, the Patent Office laid a set of principles and outlined the mechanism for providing patent registration services to researchers, within the framework of legislative *bylaws, articles and clauses*, governing the patent registration process at KU, including protection of their intellectual property. Essential guidelines for these procedures were documented, and widely circulated to all colleges, to keep the researchers informed on standard requirements for submission of patent registration requests. The Patent Office renders patent-related services to researchers, including follow-up procedures concerning registration of patents, in close coordination with the regional and international patent regulating bodies for the award of patents rights to the researchers, as

well as protecting their intellectual property rights.

Over the last five years (2010-14), RS enlisted a total of 27 patent winners, specifics of which were reported in the earlier June 2015 edition of the OVPR's Research newsletter. This figure has currently progressed to 34 Patent awardees, with seven more researchers, achieving international laurels for their scientific inventions, as per available statistics for 2015 up to mid-2016, enhancing the patents recipients sphere. The new patents recipients are from the faculties of *Life Sciences, Engineering & Petroleum, Medicine, Allied Health Sciences, and Pharmacy*, whose breakthrough research, pursued either independently or jointly, resulted in scientific discoveries and products of inventions, meriting US patent registration. These discoveries add a significant dimension to the quality and value of institutional research, bringing international recognition and laurels to Kuwait University, through the attributes of research quality, scientific distinction and excellence, the values that RS is

► rigorously promoting in the realization of KU's global aspirations.

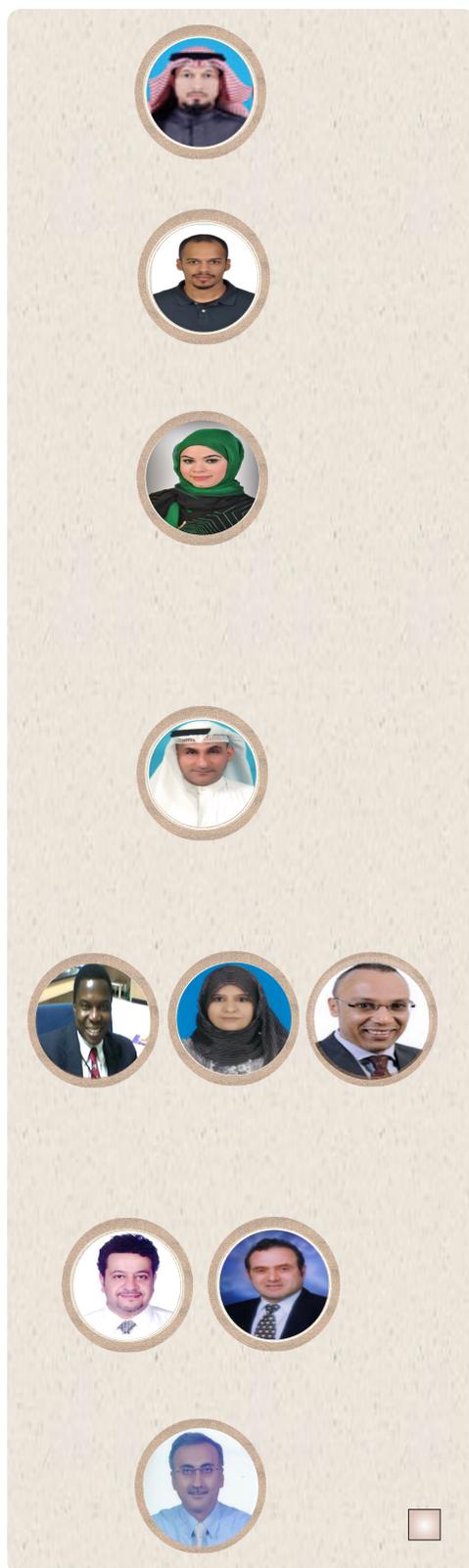
This ultimate objective forms the core of RS strategic move in advancing institutional research through policy, awards, and rewards,

creating a stimulating environment that encourages faculty members to pursue high quality research, generating outputs of international credibility and acclaim. The distinguished attainments of the seven new patent winners, are essentially

being viewed in this context, with RS considering their efforts commendable and immensely valuable in raising the spectrum of institutional research. The winners of new US registered patents (2015/16) are enlisted below:

New Recipients of US Registered Patents (2015-16)

1. **Dr. Bader S. Al-Anzi**, Faculty of Life Sciences
Patent awarded for following invention
"Electrical Outlet Safety Device"
(Patent No.: US 8956168 B2 dated February 17, 2015)
2. **Eng. Museb S. Alhusain**, Faculty of Engineering & Petroleum
Patent awarded for following invention
"Apparatus for Determining Coefficients of Friction"
(Patent No.: US 8997551 B2 dated April 7, 2015)
3. **Prof. Ludmil T. Benov**, Faculty of Medicine
Rima A. Ezzeddine, Faculty of Allied Health Sciences
Dr. Anwar Albanaw, Faculty of Allied Health Sciences
Dr. James D. Craik, Faculty of Medicine
Patent awarded for following invention
"Method for Fluorescent Staining of Cellular and Intracellular Membranes"
(Patent No.: US 9034596 B1 dated May 19, 2015)
4. **Dr. Tareq A. Al-Bahri**, Faculty of Engineering & Petroleum
Patent awarded for following invention
"Method for Measuring the Properties of Petroleum Fuels by Distillation"
(Patent No.: US 9201053 B2 dated December 1, 2015)
5. **Dr. Ahmed Z. El-Hashim**, Faculty of Pharmacy
Dr. Ivan O. Edafiogho,
Dr. Samuel B. Kombian
Dr. Mariam H. Yousif, Faculty of Medicine
Patent awarded for following invention
"Antitussive and Bronchodilator uses for Enaminone Ester"
(Patent No.: US 9238019 B2 dated January 19, 2016)
6. **Prof. Milad Bitar & Prof. Fahd Al-Mulla**, Faculty of Medicine
Patent awarded for following invention
"Treatment of Non-Healing Diabetic Wounds With Estrogen Agonists and TNF – a Inhibitors"
(Patent, dated June 5, 2016)
7. **Prof. Esam M. Alawadhi**, Faculty of Engineering & Petroleum
Patent awarded for following invention
"Thermal Barrier Panel"
(Patent, dated June 27, 2016)



ANNOUNCEMENTS

New Forms for Research Implementation

RS draws the attention of all researchers to a set of New Forms to be used for their research related transactions concerning project implementation. A circular concerning this matter was issued earlier by RS on May 3, 2016, to alert researchers on the mandatory requirement of using New Forms with immediate effect while submitting their project-related requisitions to the Research Implementation Office. All submitted Forms must be typed, printed in color,

and approved by the Departmental Chairman, and endorsed by the Vice Dean for Research of the concerned faculty, to facilitate research processing and workflow.

The new forms have been specifically designed for expediting transactions, shorten paper work, and save researchers time in completing requisite Forms concerning research projects manpower. Researchers are also informed that RS would NOT accept old or untyped forms.

Package of New Forms includes:

1. Forms for Manpower on research projects.
2. Application Form for Manpower on Secondment on research projects.
3. Finger print Forms for research projects manpower.
4. Forms for Assigning of a mission outside the work place.

Purchase of Consumables through KU Stores Department Forms for Research Implementation

All researchers, with budgetary allocation for purchase of consumables on Approved Projects, must follow the procedures outlined by the Stores Department, while submitting their purchase requests. Essentially, the procedural requirement concerns identifying code number(s) for all items to be purchased, as in-

dicated in the "Items Guide," available on the Website of the Store's Affairs Administration.

(<http://stores.kuniv.edu.kw>).

Researchers must clearly specify these codes when filling relevant application, requesting the purchase of needed item(s) from the Store.

Adherence to these requirements are aimed at streamlining the processing of purchase request, and expedite delivery of ordered item(s) to the researchers. Purchase orders without specific item codes may cause undue delay in the purchase and delivery of the requisitioned consumables and items.

UP COMING EVENTS

Unveiling advanced calendar of its upcoming events, timed with the onset of the new academic year

2016/17, starting September 2016, the Research Sector announces the scheduling of a series of forthcom-

ing events for the information of faculties and the scientific community.

Event	Date
● Research Awards Ceremony for honoring Distinguished researchers	October 5, 2016
● RIG Orientation Session for new Kuwaiti faculty members	October 31, 2016
● SPSS Workshop for faculty members And	October 25, 2016

VISITING DELEGATIONS

IMEC Delegation visits OVPR

The Vice President for Research, Prof. Taher Al-Sahhaf, and his Assistant, Dr. Laila Marouf, received on Wednesday, April 20, 2016, a visiting delegation from IMEC (Belgium), headed by Dr. Ivan Gordon, Director, Solar Energy Program, and Dr. Patrizio Manganiello, researcher involved in the Solar Energy project. The delegation was accompanied by Kuwait University faculty members and researchers from the college of Engineering & Petroleum, Dr. Yaser Abdulraheem, and Dr. Ali Hajiah, the PI supervising the program.

The visit marked continuity of KU-IMEC partnership process, and carrying forward Phase II of the collaborative project on “Advanced Crystalline Silicon Photovoltaics Research Program,” a collaboration continuing since 2008 between KU and IMEC (Belgium). The visit, largely technical in nature, was within the framework of a series of contacts, communications, visits, scientific interactions and symposia held from time to time over several years in the State of Kuwait and Belgium, respectively.



▲ IMEC Delegation visits Office of Vice President for Research

Visit marks continuity of KU-IMEC partnership process, within the framework of carrying forward Phase II of collaborative project on “Advanced Crystalline Silicon Photovoltaics Research Program”

The latest agreement between the two parties was signed on December 1, 2015, marking the completion of research collaborative project entitled, “Advanced crystalline silicon photovoltaics research program”. Prof. Taher appreciated the efforts of researchers participating in the joint program, and emphasized that the meeting was part of KU’s continuous collaboration with the international nano-research center, enhancing our

commitment towards supporting The State of Kuwait in establishing the basis of sustainable energy. Continuing further, Prof. Taher said that the visit was indicative of realizing the goals of scientific collaboration through developing Kuwaiti human resources, training them to support scientific research, and developing the solar energy technology, an area considered one of the most important sustainable energy fields.

Malaysian Delegation visits Office of Vice President for Research

A two member delegation from the University of Malaysia visited OVPR on May 3, 2016, and

was received by Assistants Vice President for Research, Prof. Yousuf Garashi, Prof. Haider Behbehani and Dr. Laila Marouf. The meeting focused on scientific research and matters of mutual interest.



▲ Malaysian Delegates visits Assistants Vice President for Research

Within the framework of the Research Sector's quest for enhancing research collaboration with international research centers and universities, RS recently received a visiting delegation from the University of Cranfield, UK, on Sunday, April 10, 2016. The delegation was received by Prof. Taher Al-Sahhaf, Vice President for Research, and his Assistant, Dr. Layla Marouf, amidst the presence of Dr. Ali Al-Mutairi, Vice Dean for Research & Graduate Studies, College of Engineering & Petroleum, Dr. Abdelrahman Ahmed, Vice Dean for Academic Affairs, College of Life Sciences, Dr. Saad Makseed from the College of Science, Dr. Abdulwahab Al-Musallam from College of Engineering & Petroleum, and Dr. Abdelrashid Elmi from College of Life Sciences. The visiting delegation included Ms. Samina Masoud, International Partnership Manager, Cranfield University, UK, as well as British Council's representative, Mr. Imran Yousaf.

The discussions primarily centered on collaborative dimensions, with possibilities of research partnership in the areas of aerospace, agrifood and environmental technologies, energy and power, defence

Within the frame of the Research (RS) efforts in enhancing scientific research at Kuwait University (KU), and developing collaborative ties with international research centers and universities, the Assistants Vice President for Research, Prof. Yusuf Garashi, Prof. Haidar Behbehani, and Dr. Laila Marouf, received the keynote speaker of the 21st Annual Posters Conference, organized by the faculty of Medicine, Prof. Bernard Mozer, Head of Infectious Diseases & Immunology Center, Cardiff University, UK.

The visit, on Tuesday May 3, 2016, at the Office of Vice President for Research, provided an opportunity for sharing thoughts on scientific research,

Research Sector receives visiting delegation from Cranfield University, UK



▲ RS receives Delegation from University of Cranfield, UK

Discussions focus on collaborative dimensions & partnership in the areas of scientific research, graduate programs, exchange of facilities & expertise between KU & Cranfield University

and security, leadership and management, manufacturing and transport systems. The focus was also on boosting engineering programs in the sphere of Master's and Ph.D studies, especially as Cranfield University was developing high quality scientific research for addressing major engineering or technological challenges that the industry was facing, which provided ample opportunities for involving students directly in the research programs.

As regards faculty development pro-

grams, the visiting delegation elaborated that Cranfield University provided fully funded Ph.Ds through shared industrial scholarships scheme, and UK Research Council sponsored awards. The meeting also provided grounds for the development of joint degrees (M.Sc.), delivery of executive courses in UK and Kuwait, sharing of facilities, and educational standards, and coordination in oil, gas and related fields of interest to Kuwait University, as well as other topics of mutual interest.

Research Sector receives Prof. Bernard Mozer from Cardiff University, UK

Discussions center on exploring collaborative possibilities between the two institutions



▲ RS receives Prof. Bernard Mozer

with the discussions centering on diverse fields of scientific research, as exploring collaborative possibilities well as discussing topics of mutual interest.

RS NEWS

Vice President for Research inaugurates 21st Annual Posters Conference organized by the Faculty of Medicine

Conference Session displays 248 posters on latest research in medical sciences



Keynote speaker, Prof. Bernard, highlights major factors in monitoring immunology and aging in humans

The Vice President for Research, Prof. Taher Al-Sahhaf, inaugurated the 21st Annual Posters Conference, organized by the faculty of Medicine on May 2, 2016, at the Abdulmohsin Al-Abdulrazzaq theatre. The four-day posters conference, from May 2-5, 2016, was opened amidst the presence of Prof. Adel Awadhi, Acting Vice President, Health Sciences Center (HSC), Assistants Vice President for Research, Prof. Yousuf Garashi, Prof. Haidar Behbehani and Dr. Laila Marouf, Prof. Adel Ayad, Dean, faculty of

Medicine, Vice Deans for Research of concerned faculties, and attended by a gathering of HSC faculty members from faculties of Medicine, Dentistry, Pharmacy, Allied Health Sciences and Public Health, students and doctors from Kuwait and abroad, as well as external participants.

On display were a total of 248 posters,

reflecting latest scientific research in wide ranging fields of medical sciences, presented by the conference participants. The conference keynote speaker, Prof. Bernard Mozer, Head of Infectious Diseases & Immunology Center at Cardiff University, UK, presented a lecture on Antibodies Chemical Chemokines as key factors in monitoring immunology and aging in humans. □

Vice President for Research participates in a Symposium on biggest collaborative project involving 72 scientists and researchers from KU, KISR & MIT under KFAS umbrella

On an invitation from Kuwait Foundation for the Advancement of Sciences (KFAS), Prof. Taher Al-Sahhaf, Vice President for Research, and his assistant, Dr. Laila Marouf, participated in a Symposium concerning the national project entitled, "From material science to urban design investment opportunities for Kuwait's public and private sectors." The symposium was held



on Monday, April 25, 2016, at 8 am, at the Hamad Al-Essa Au-

ditorium, at KFAS headquarters premises.

(RS News Contd...)

The Research Sector recently released latest editions of two of its publications, both in print and electronic formats, and accessible on OVPR Website. These editions include Research Quarterly Newsletter, February/March 2016 issue, and Sponsored Research 2011/12 & 2012/13.

The News Bulletin provides an insight into recent events, happenings, agreements, and advances in institutional research, while Sponsored Research, presents a comprehensive view of dominant areas of research, pursued across faculties during the academic years 2011/12 and 2012/13, including joint projects and graduate students research as part of their Master's and Ph.D. programs.

RS Releases Latest Edition of its Publications

1. **OVPR Quarterly Newsletter, February/ March 2016 Issue**
2. **Sponsored Research 2011/12 & 2012/13 (Combined 21st & 22nd Edition)**

These documents present analytical outlook on scientific research developments at Kuwait University, for keeping the scientific community, top executives, policy makers, institutions, collaborative partners and the public, informed, updated and aware on progress, advances and accomplishments in the domain of scientific research at KU.

For Readers information, these documents are available for access on OVPR Website at the links below:

- **OVPR Quarterly Newsletter, February/March 2016 Issue**

https://www.ovpr.kuniv.edu/research/publications/news_mar16_en.pdf
- **Sponsored Research 2011/12 & 2012/13 (Combined 21st & 22nd Edition)**

<https://www.ovpr.kuniv.edu/research/publications/SR2013.pdf>





▶ *KU-PAAET sign collaborative agreement...(From P. 9)*

the terms of cooperation and implementation process that was practical, preserving the rights of both institutions, and enhancing KU-PAAET collaboration.

The agreement was aimed at exchange of scientific and research ex-

pertise between the two institutions, specifically in addressing the State's developmental concerns, as well as collaboration in joint organization of conferences, symposia, technical workshops, and generation of scientific publications. In addition, the agreement also entailed rendering

support to exchange of scientific visits and delegations, formation of task-force teams, drawing benefit from scientific outputs and products of inventions, and contributing towards enriching existing resources of information centers and libraries at both the institutions.



► *Guide to Subject Areas 2016/17...(From P. 25)*

ridors and fields of scientific research at Kuwait University, which need appropriate classification within the Subjects Areas Guide.

RS current efforts are part of this regular activity, involving extensive updating of the Subjects Guide, to meet researchers diversified, inter-disciplinary and collaborative needs, signifying their widening research interests, while enhancing and enriching the existing pool of subjects database that RS maintains. Providing universal outlook of existing and new scientific fields, the Guide is intended as a critical reference resource on current and potential areas of faculty research interests, released as a handy document for KU faculties and the scientific community.

The Guide consolidates vast and voluminous data on scientific fields and areas within the framework of a single document, with each subject area carrying a specific numerical code, fixing its placement within a faculty and department. The updating process was initiated in April 2016, with RS inviting all faculties to provide an updated listing of subjects areas that needed inclusion in the new Guide, apart from review of terminologies in Arabic

and English to ensure scientific accuracy of subjects areas placed within the document.

Presently, RS has already started receiving requisite information from several faculties, based on which a consolidated listings of new areas are being generated for assigning new area codes for the next edition of Subjects Guide 2016/17. To ensure complete data inflow from faculties, RS would pursue the communication mode with concerned faculties to overcome incidents of data-lapse and non-response, in a bid to enlist their equal participation in providing requisite subjects data, for RS to generate a complete and comprehensive new edition of the Guide, earmarked for release during the academic year 2016/17.

Looking back, RS introduced the first *Guide to Subject Areas in early eighties*, appropriately designating researchers interests in basic and applied sciences, and in arts and humanities. This premier document, classifying subjects within the existing scientific fields at KU during the time, was released more than three decades ago, and created an enduring reservoir of scientific areas and fields of research, being pur-

sued by the academic community at KU. Since then, the **Guide to Subject Areas** has undergone *seven updates*, released by RS during the years 1988, 1995, 2000, 2005, 2008, and 2014, respectively, with the next **eighth edition** of the Guide 2016/17, currently under the production line-up. The upcoming edition of the *Guide to Subject Areas, 2016/17* would present the latest, far wider outlook of the subjects and fields of faculties ongoing and emerging research interests, in-tune with the prevailing scientific vibrancy across KU faculties.

While RS looks forward to inflow of subjects data from all faculties for the under-preparation **Guide to Subject Areas, 2016/17**, it appreciates and acknowledges the input of those faculties who have already responded with updated listing of Subject Areas relevant to their respective disciplinary streams. In the updating process, RS endeavor would forever remain to offer researchers latest, most comprehensive listings of subject areas representing the faculties newer scientific interests and research requirements, with significant expansion, additions and inclusions reflecting expanding realms of scientific research at Kuwait university. □

► *Vice President for Research participates in KFAS Symposium...(From P. 31)*

This national project is the result of scientific collaboration, involving 72 scientist and researchers from Kuwait University(KU),

Kuwait Institute for Scientific Research(KISR) and Massachusetts Institute of Technology (MIT), and is considered the biggest

of its kind, concerning institutional collaboration and funding under the umbrella of KFAS agreement with MIT. □

STATISTICS ON FACULTY RESEARCH

Faculties current research preferences oscillate as much towards smaller projects, as comprehensive studies, creating two dynamic zones of research activity

The faculty research activity retained its upward momentum, with the Research Sector (RS) recording a total of 630 projects in various stages of *progress, completion* and *review*, midway through the current academic year 2015/16, registering 5% growth over last year's midyear (601) projects, reported in June/July 2015 edition of OVPR's Research Newsletter. This increase indicates faculty members growing confidence in the grant support system, providing *opportunity, resources* and *climate* for advanced and innovative research. RS offers **ten types of grants**, each meant for a specific purpose, with projects awarded under *three levels of funding support*. Researchers thus have the *freedom* and *flexibility* of conceptualizing and developing proposals in their

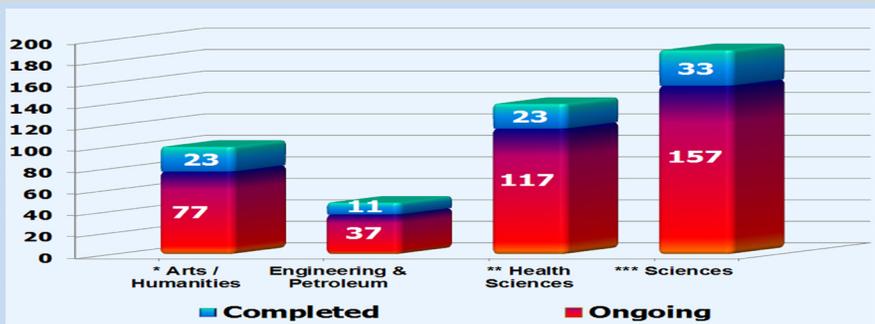
RS records a gross total of 630 projects, enlisting 5% growth in faculty research, midway through the academic year 2015/16

The sphere of joint studies is vital in promoting applied research that seeks to find *practical solutions, provide scientifically driven answers* and *discovers new knowledge*

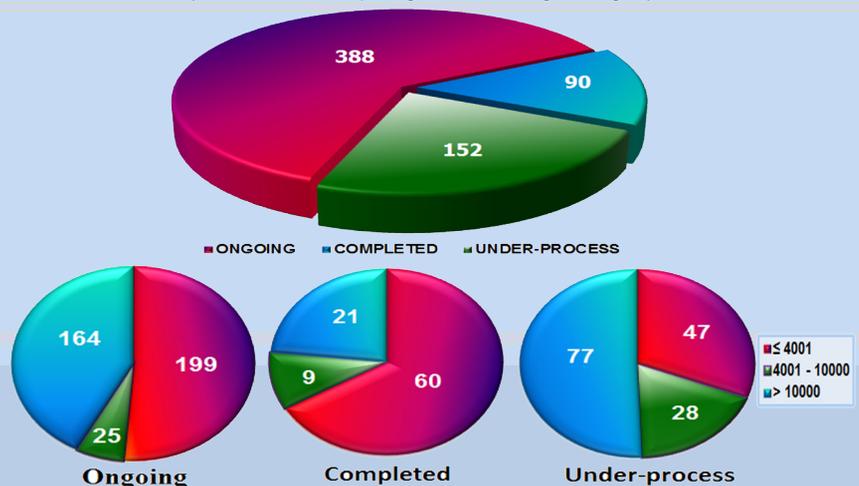
Table 1. TOTAL RESEARCH ACTIVITY
Academic Year (2015/16) (Sept. 1, 2015 to Feb. 29, 2016)

Project Status	Funding ** Levels			Total
	less than 4001	4001 - 10,000	more than 10,000	
Ongoing	199	25	164	388 478 (75.9%)
Completed	60	9	21	
Under-process	47	28	77	152 (24.1%)
TOTAL	306 (48.6%)	62 324	262	630

* Source KURS, Data upto February 29, 2016 (Includes ongoing/completed projects from previous year).
** Values in KD.



* Includes the Faculties of Arts, Business Admn., Education, Law, Sharia and Social Sciences.
** Health Sciences Center Includes Faculties of Allied Health Sciences, Dentistry, Medicine and Pharmacy).
*** Includes Faculties of Architecture, Computing Sciences & Engineering, Life Sciences and Science.



Sustenance of scientific research critically rests on funding support

respective areas of scientific interests, and accordingly configuring their *budgetary* and *resource* requirements.

For enhancing the faculty members active involvement in funded research, RS is endeavoring to make the system more flexible and attractive for boosting the researchers confidence in grant support system. The current move towards closer coordination and communication with faculties is part of this strategy to create a receptive environment that benefits researchers and encourages them to pursue advanced and innovative research. A periodic review of research support rules and regulations is also part of this process to invigorate the system's effectiveness in serving researchers, and in meeting the institutional developmental needs through valid reformations, inclusions and updates.

It is within this policy frame that the current growth in funded research exhibits an encouraging sign, with mid-year statistics recording **630 projects**, brightening prospects for further growth ahead. Of the total projects, **388 (61.6%)** were *ongoing*, **90 (14.3%)** *completed*, and **152 (24.1%)** *under-process* (Table 1). By *funding levels*, maxi-

RS envisioning an effective *strategy & steps* to identify *expertise & potentials* for scientific *innovation and excellence* for KU to achieve pre-eminence & recognition on its own *scientific strengths and values*

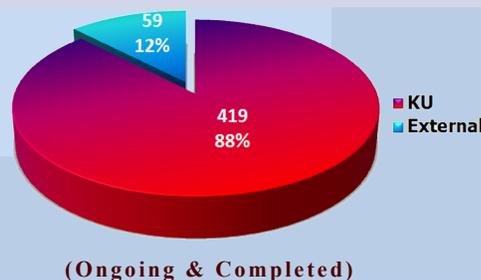
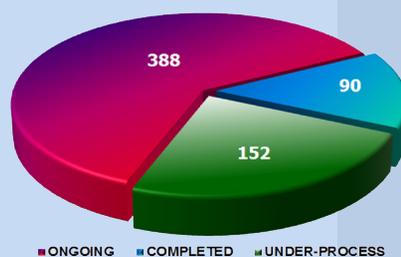
mum 306(48.6%) projects were in the lowest budgetary category of less than KD 4001/-, followed by 262(41.6%) projects in highest budgetary category of more than KD 10,000/-. The medium budgetary category (KD 4001-10,000/-) had the lowest number of 62 (9.8%) projects. Combining medium and highest funding categories, a total of 324(51.4%) projects were enlisted in relatively higher budget-

Table 2. TOTAL ONGOING, COMPLETED & UNDER-PROCESS PROJECTS by FACULTY & FUNDING SOURCE, Academic Year (2015/16) (Sept. 1, 2015 to Feb. 29, 2016)*

FACULTY	ONGOING		COMPLETED		UNDER-PROCESS		TOTAL		GRAND TOTAL
	KU	EXT**	KU	EXT	KU	EXT	KU	EXT	
Allied Health Sciences	12	1	-	-	7	2	19	3	22
Architecture	2	1	-	-	1	-	3	1	4
Arts	19	-	2	-	3	-	24	-	24
Business Admn.	14	1	8	-	3	1	25	2	27
Computing Sciences & Eng.	12	3	3	1	10	2	25	6	31
Dentistry	14	1	4	-	5	1	23	2	25
Education	9	-	5	1	3	-	17	1	18
Engg. & Petroleum	28	9	11	-	15	5	54	14	68
Law	-	-	1	-	1	-	2	-	2
Life Sciences	17	2	2	-	3	-	22	2	24
Medicine	65	12	11	1	24	6	100	19	119
Pharmacy	12	-	7	-	9	1	28	1	29
Science	102	18	24	3	32	6	158	27	185
Sharia	10	-	-	4	4	-	14	4	18
Social Sciences	24	-	1	1	8	-	33	1	34
TOTAL	340	48	79	11	128	24	547	83	630
	388		90		152		630		630
	478								

* Source KURS, Data upto February 29, 2016.

** External Institutions.



ary range, exceeding 306 (48.6%) projects in the limited budgetary category. These figures tend to exhibit faculties preferences oscillating as much towards smaller projects, as comprehensive studies, creating two dynamic zones of research activity in terms of research objectives and associated budgetary levels. Interestingly, a larger proportion of newly submitted 105 (69.1%) under-process projects were in the medium and big budgeted category, the clearance of which is bound to boost the numeric count of big-budgeted comprehensive studies, a development which RS would closely be monitoring for its potential implications in the realization of RS mission and goals.

Midyear statistics also showed maximum ongoing 199 (51.3%) and completed 60 (66.7%) projects enlisted under the lowest budgetary category (KD 4001/-). However, maximum under-process 77 (50.7%) projects appeared in the highest budgetary category of more than KD 10,000/-.

The larger volume of under-process projects in the highest budgetary category, reflected faculties predilection towards comprehensive studies, which may overtake small-scale projects in future (Table 1).

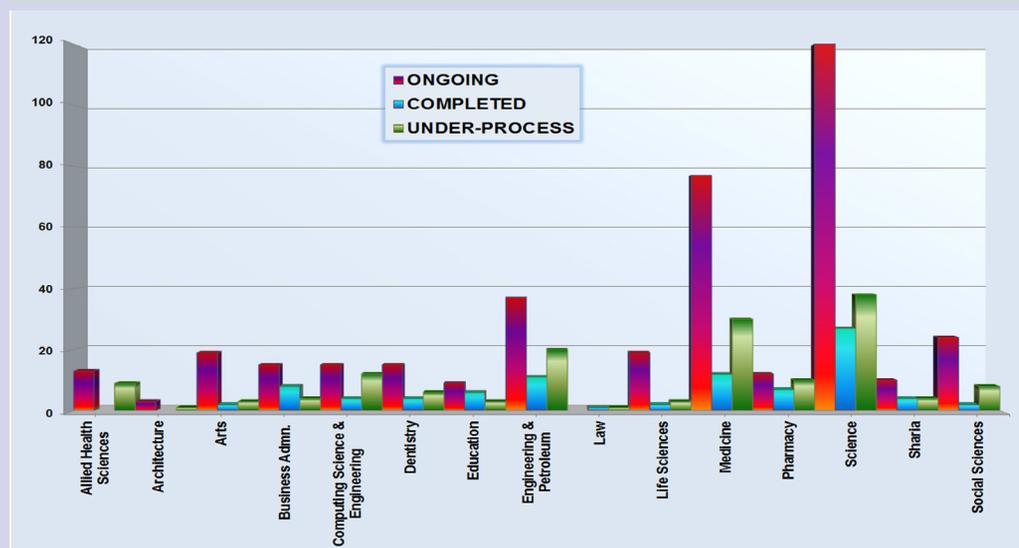
The statistics further showed all faculties to be the grant beneficiaries, though the level of their participation in funded research distinctly varied. Analyzing all ongoing and completed projects, faculties cumulative research activity totaled **478 projects** midway through the academic year 2015/16. Of these, **388 (81.2%) projects were ongoing**, and **90(18.8%) completed**. Faculty-wise distribution of these projects showed Science (147), Medicine (89), and Engineering &

Petroleum (48) to be the top recipients of grants, collectively accounting for 284 (59.4%) ongoing and completed projects, while remaining 194 (40.6%) grants were distributed over the other 12 faculties (Table 2). These figures, however, do not include under-process projects, currently lined-up for funding support, the clearance of which is bound to change the existing grant-equations in terms of faculties participation in funded research. The under-process domain enlisted 152

Table 3. PROJECT STATUS by FACULTY & FUNDING LEVELS**
Academic Year 2015/16 (Sept. 1, 2015 to Feb. 29, 2016)*

FACULTY	ONGOING			COMPLETED			UNDER-PROCESS			TOTAL
	less than 4001	4001 - 10,000	more than 10,000	less than 4001	4001 - 10,000	more than 10,000	less than 4001	4001 - 10,000	more than 10,000	
Allied Health Sciences	4	1	8	-	-	-	-	3	6	22
Architecture	2	-	1	-	-	-	1	-	-	4
Arts	19	-	-	2	-	-	1	1	1	24
Business Admn.	14	1	-	8	-	-	1	2	1	27
Computing Sciences & Eng.	6	2	7	2	1	1	6	1	5	31
Dentistry	7	2	6	3	1	-	2	1	3	25
Education	6	1	2	4	2	-	2	1	-	18
Engineering & Petroleum	10	3	24	6	2	3	2	3	15	68
Law	-	-	-	1	-	-	1	-	-	2
Life Sciences	9	6	4	2	-	-	3	-	-	24
Medicine	39	1	37	7	-	5	4	4	22	119
Pharmacy	7	-	5	3	-	4	4	2	4	29
Science	43	8	69	17	2	8	11	8	19	185
Sharia	10	-	-	4	-	-	4	-	-	18
Social Sciences	23	-	1	1	1	-	5	2	1	34
TOTAL	199	25	164	60	9	21	47	28	77	630

* Source KURS, Data upto February 29, 2016.
** Values in KD.



(24.1%) projects, distributed over Science (38), Medicine (30) and Engineering & Petroleum (20) faculties, collectively enlisting largest number of submitted projects for grant support, and accounting for 88 (57.9%) under-process projects. The remaining 64 (42.1%) newly submitted projects reflected proposals initiated by the other 12 faculties seeking funding support. Indeed, the coming six months of the current academic year 2015/16, would reveal the exact participation levels of faculties in funded research in numeric terms, providing relative measure of the faculties respective research *development, accomplishments* and *performance levels* attained in terms of *projects* and *productivity*.

The sphere of **388 ongoing projects**, cumulatively accounted for (61.6%) projects in progress midway through the academic year 2015/16. Faculty-wise distribution of these projects showed maximum 157 (40.5%) projects actively being pursued across the sciences (*Science, Architecture, Computing Sciences & Engineering, and Life sciences*) faculties, followed by 117(30.2%) ongoing projects in progress at the Health Sciences Center (*Medicine, Dentistry, Pharmacy and Allied Health Sciences*) faculties, Arts & Humanities (*Arts, Business Administration, Education, Law, Sharia and Social Sciences*) faculties pursuing 77(19.8%) ongoing projects, and Engineering & Petroleum faculty accounting for 37 (9.5%) ongoing projects (**Table 2**). By *funding-levels*, a higher concentration of 199 (51.3%) ongoing projects figured under the lowest budgetary category of less than KD 4001/, followed by 164 (42.3%) projects in more than KD 10,000/- category, while 25 (6.4%) ongoing projects had medium-range budget

(KD4001-10,000/-) (**Table 3**). The domain of 90 completed projects also exhibited a similar pattern, with maximum 60 (66.7%) completed projects having less than KD 4,001/- budget, followed by 21(23.3%) completed projects in the highest budgetary category of more than KD 10,000/-, while lowest number of 9 (10%) completed projects were in the medium-range budgetary (KD 4001 – 10,000/-) category. Faculty-wise, Scientific faculties achieved higher completion rate with 33 (36.6%) projects, followed by both Health Sciences and Arts & Humanities faculties achieving equitable completion rate with 23 (25.6%) projects each, while Engineering & Petroleum faculty enlisted lowest number of 11(12.2%) completed projects (**Table 3**).

Since the sustenance of scientific research at Kuwait University (KU) critically rests on funding support provided to faculty members for pursuing original and scientifically sound proposals, midyear statistics showed a total of 478 *ongoing* and *completed* projects thriving on funding support provided by **KU** and **external institutions**. In gross numeric terms, a huge volume of **419 (87.7%) projects received KU's funding support**, while **59(12.3%)** projects were sustained through the participation of as many as **six external institutions**, as part of the collaborative process. The beneficiaries of external grants were the faculties of Engineering & Petroleum (11), Health Sciences (16), Sciences (28), and Arts & Humanities (4), collectively providing the outlook of RS

Table 4. TOTAL ONGOING & COMPLETED RESEARCH PROJECTS by FUNDING SOURCE Academic Year 2015/16 (Sept. 1, 2015 to Feb. 29, 2016)*

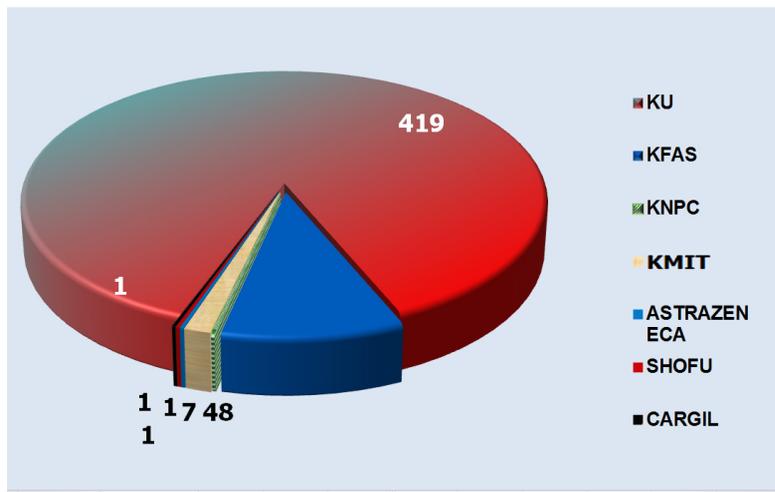
FACULTY	KU	KFAS	KNPC	KMIT	ASTRA-ZENECA	SHOFU	CARGIL	TOTAL
Allied Health Sciences	12	1	-	-	-	-	-	13
Architecture	2	1	-	-	-	-	-	3
Arts	21	1	-	-	-	-	-	22
Business Admn.	22	1	-	-	-	-	-	23
Computing Sciences & Eng.	15	4	-	-	-	-	-	19
Dentistry	18	-	-	-	-	1	1	20
Education	14	1	-	-	-	-	-	15
Engineering & Petroleum	39	7	1	3	-	-	-	50
Law	1	-	-	-	-	-	-	1
Life Sciences	19	1	-	1	-	-	-	21
Medicine	76	11	-	1	1	-	-	89
Pharmacy	19	-	-	-	-	-	-	19
Science	126	19	-	2	-	-	-	147
Sharia	10	-	-	-	-	-	-	10
Social Sciences	25	1	-	-	-	-	-	26
TOTAL	419	48	1	7	1	1	1	478

* Source KURS, Data upto February 29, 2016 (Include ongoing/completed projects from previous year).

- KU Kuwait University
- KFAS Kuwait Foundation for the Advancement of Sciences
- KNPC Kuwait National Petroleum Corporation
- KMIT Kuwait Massachusetts Institute of Technology
- SHOFU
- ASTRAZENECA
- CARGIL

collaborative sphere. The external support is part of RS strategic objective for creating a progressive environment that facilitates large scale, cross-disciplinary studies in collaboration with external institutions for meeting national developmental needs and priorities. Within this policy frame, of the 59 joint studies, *Kuwait Foundation for the Advancement of Sciences* (KFAS) was responsible for supporting maximum 48 (81.4%) joint projects, *Kuwait Massachusetts Institute of Technology* (KMIT) enlisted 7(11.9%) collaborative projects, while *Kuwait National Petroleum Company* (KNPC), *AstraZeneca*, *Shofu* and *CARGIL* were responsible for supporting 1 (1.7%) project each (Table 4). As regards 152 under-process projects, 128 (84.2%) proposals were lined-up for KU grant support, and 24 (15.8%) proposals for external funding support (Ref. Table 2).

For RS, the sphere of joint studies is vital in promoting *applied research* that seeks to find *practical solutions*, provides *scientifically driven answers*, and *discovers new knowledge*. The essence is to bring together *academia*, *industrial knowhow*, and *technical expertise* in addressing scientific complexities that challenge *science* and *society* in search of *valid answers*. The underlying purpose is to develop institutional *potentialities*, *caliber* and *capacity* for advance and



innovative research that could lead to scientific inventions, technology spinoffs and products of potential economic and human value. RS intent, therefore, is to widen its collaborative horizons and bring together *institutions*, *collaborators* and *external partners* for potentially significant collaborative studies in search for empirical answers to issues, concerns and problems that defy science, and **remain** elusive and

joint grants, enlisting 190 (39.7%) ongoing and completed projects. These were followed by Health Sciences Center faculties accounting for 140(29.3%) ongoing and completed projects, Arts & Humanities faculties recording 100 (21%) ongoing and completed projects, and Engineering & Petroleum faculty having 48 (10%) ongoing and completed projects. As regards 152 under-process projects, maximum

unsolved. The distribution of projects sustained through KU and external support showed scientific faculties to be the biggest recipients of

Table 5. ONGOING RESEARCH PROJECTS by TYPES of GRANTS Academic Year 2015/16 (Sept. 1, 2015 to Feb. 29, 2016)*

Faculty	Types of Grants									Grand Total
	URP	RIG	PRP	GRP	USP	GFP	ERP	SRUL	GCC	
Allied Health Sciences	9	1	1	1	-	-	1	-	-	13
Architecture	-	1	1	-	-	-	1	-	-	3
Arts	14	5	-	-	-	-	-	-	-	19
Business Admn	11	2	1	-	-	-	1	-	-	15
Computing Sc. & Eng	7	2	2	-	1	-	3	-	-	15
Dentistry	13	-	-	-	-	-	1	1	-	15
Education	5	2	1	-	-	1	-	-	-	9
Engineering & Petroleum	19	1	4	1	-	3	9	-	-	37
Law	-	-	-	-	-	-	-	-	-	-
Life Sciences	8	3	2	4	-	-	2	-	-	19
Medicine	32	6	3	21	-	1	12	1	1	77
Pharmacy	8	-	-	4	-	-	-	-	-	12
Science	70	3	5	8	-	15	18	1	-	120
Sharia	9	1	-	-	-	-	-	-	-	10
Social Sciences	17	7	-	-	-	-	-	-	-	24
TOTAL	222	34	20	39	1	20	48	3	1	388

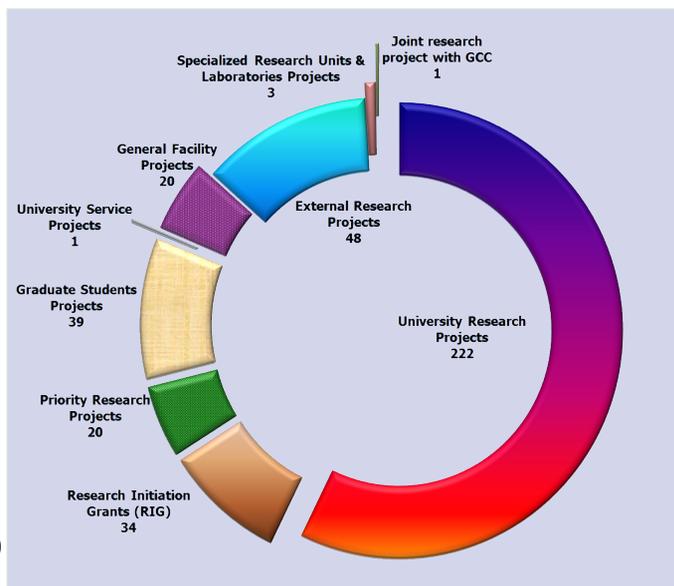
* Source KURS, Data upto February 29, 2016.

URP -- University Research Projects
PRP -- Priority Research Projects
USP -- University Service Projects

RIG -- Research Initiation Grants
GRP -- Graduate Research Projects
GFP -- General Facility Projects

128 (84.2%) new proposals were lined up for **KU funding support**, and 24 (15.8%) proposals for **external grants**. Faculty-wise, Health Sciences Center faculties submitted maximum 55 (36.2%) new proposals for grant support, followed by Scientific faculties collectively submitting 54(35.5%) new proposals, Arts & Humanities faculties jointly submitting 23 (15.1%) new proposals, and Engineering & Petroleum faculty enlisting 20(13.2%) proposals for grant support.

Table 5 provides current outlook of 388 ongoing projects by *Types of Grants*, actively being pursued across faculties. Analytically, maximum 222 (57.2%) ongoing projects were listed under the *University Research grants* category, 48 (12.4%) were *External Research* projects, 39 (10.1%) *Graduate Students Research* projects, 34 (8.8%) *RIG* projects, 20 (5.6%) projects each were *Priority Research* and *General Facility grants*, 3(0.8%) *SRUL* projects, and 1(0.3%) project each figured under the *University Service* and *GCC joint grants* categories. Currently, no ongoing project figured under the *National Research grant* category. Overall, *University Research projects* appeared the most favored grant support category, forming the core of institutional research, while other grant support categories attracted researchers for accomplishing specific objectives, initiatives, postgraduate research, analytical and experimental studies, infra-structural strengthening and facilities acquisition. RS Research Support System has ample provision for pursuing projects under any of the **10 types of grants**, providing wide-ranging opportunities to researchers for pursuing their respective research interests by availing and



utilizing institutional grant support, facilities and resources.

Embedded within the grant support process are the institutional expectations that the awarded projects would lead to potentially significant outputs, publishable in international accredited journals of repute with an impact factor as per the JCR index. All completed projects must, therefore, generate research papers publishable in high impact journals on quality grounds. *Research quality* and *productivity* are thus the key parameters, determining the ultimate *scientific value* and *credibility* of KU research, which RS is endeavoring to promote across faculties for improving the *quality culture* in KU research. Research productivity is, therefore, imperative in assessing the value of outputs generated from completed projects, and provides empirical measure of faculties annual turnout of publications in *high ranking, high impact* JCR listed journals. Indeed, these publications are a significant indicator of the quality of institutional research, as well as the extent of faculties research performance, observable in their respective publications count, over the **last five calendar years** (2010 – 2014), including 2015 data, which is currently in a state of flux, tied as it is with the

timing and release of respective journals editions.

Table (6) integrates faculties productivity data over the preceding five calendar years (2010 – 2014), and provides the current outlook of institutional research publications, appearing in JCR listed journals.

Starting with 2010 as the base year, faculties cumulative productivity totaled 142 published papers during the calendar year 2010, 157 during 2011, 139 during 2012, 159 publications during 2013, 137 during 2014, and 92 papers as advanced indication of faculties progressive performance during the calendar year 2015, the figures for which are expected to improve with the timing of related journals released, necessitating relevant data-adjustments.

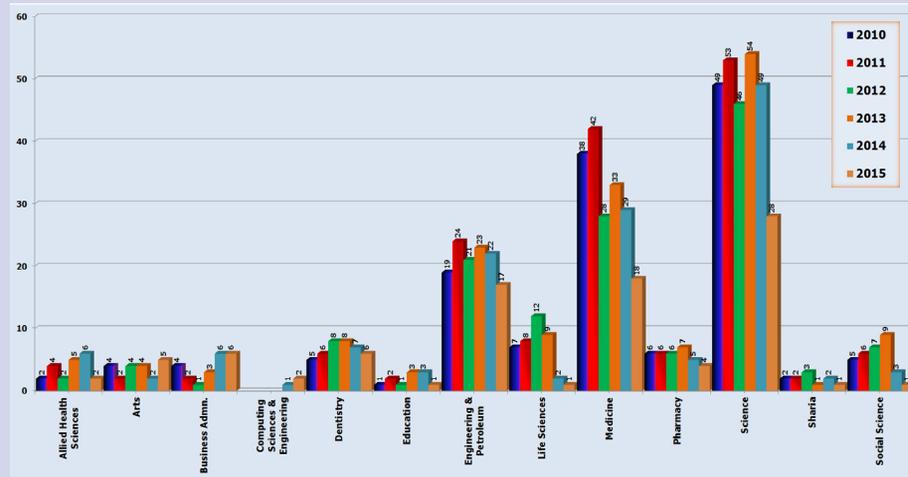
In comparative terms, though all faculties enlisted high quality publications, accounting for their respective productivity levels, the data clearly showed faculties of *Science, Medicine, and Engineering & Petroleum*, achieving a much larger volume of published papers, during the last five calendar years, including advanced publications count for 2015. The sustained level of their productivity is indicative of their scientific vibrancy in pursuing high quality research, generating outputs of international credibility and impact as per JCR index. As the quality index in KU research continues to improve, RS is simultaneously observing clear signals of growth in faculties increased participation in funded research, with far more faculty members seeking grants in the pursuit of scientific research.

**Table 6. PUBLISHED PAPERS, COMPARATIVE SIX CALENDAR YEARS*
2010,2011,2012,2013,2014 & 2015**

FACULTY	Calendar Years					
	2010	2011	2012	2013	2014	2015**
Allied Health Sciences	2	4	2	5	6	2
Arts	4	2	4	4	2	5
Business Admn.	4	2	1	3	6	6
Computing Sciences & Eng.	-	-	-	-	1	2
Dentistry	5	6	8	8	7	6
Education	1	2	1	3	3	1
Engineering & Petroleum	19	24	21	23	22	17
Life Sciences	7	8	12	9	2	1
Medicine	38	42	28	33	29	18
Pharmacy	6	6	6	7	5	4
Science	49	53	46	54	49	28
Sharia	2	2	3	1	2	1
Social Sciences	5	6	7	9	3	1
TOTAL	142	157	139	159	137	92

* Figures for Published papers coordinate with calendar year (Jan. 1 to Dec. 31).

** Data likely to change with inflow of more published papers for 2015.



appearing in reputable international journals with an *impact factor*.

At this juncture, RS multi-faceted responsibilities are directed at enhancing faculties participation in the pursuit of high quality research through the grant support system, improving the system's regulatory mechanism, winning researchers confidence, creating a congenial environment, encouraging joint and priority research, developing inter-institutional alliances and partnerships. The thrust is also on improving research quality, and achieving outputs of international credibility and impact that are instrumental in elevating KU's world presence and standing. The far reaching implications of these commitments entail *energizing faculty research* and *building on the current gains*, for the institution to acquire a competitive edge in faculty research that brings international recognition and places KU firmly on the global scientific platform.

This development tends to reinforce the effectiveness of RS grant support system in attracting faculties to avail resources and facilities in realizing their research interests and ambitions. To enhance the faculties momentum and confidence in funded research, RS is gearing up to review and reform the existing regulatory framework for simplifying procedural implications that would make the system more *vibrant, attractive* and *researchers-friendly*. A conducive environment is also being created through communi-

cation and contact for the redressal of faculties research-related queries and concerns, and for improving their participation in funded research, as a basis for advanced, innovative and priority research. In this regard, a *much larger volume of faculty research*, midway through the year (2015/16), together with *increased inflow of new proposals* for grant support, provide a promising outlook of institutional research, the impact of which is bound to reflect on faculties productivity and publications

This ultimate objective would continue to involve RS in envisioning an effective *strategy* and *steps* to *identify expertise* and *potentials* for *scientific innovation* and *excellence*, so that KU achieves pre-eminence and recognition on its own scientific strengths and values. In this endeavor, RS is fine-tuning its programs with institutional aspirations for achieving this ambitious goal, a journey towards which has begun, and is progressing..!