

ACK RESEARCH NEWSLETTER

Academic Year 2021/2022
Volume 1, Issue 1

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RESEARCH AT ACK

MESSAGE FROM THE PRESIDENT

Welcome to the first edition of ACK's Research Newsletter.

This newsletter shines the spotlight on some recent highlights of ACK researchers from across our schools.

During this hugely altered higher education landscape, our researchers have collectively adapted to the multifaceted challenges thrown at them and continued to produce first-class research. As we continue to work through the impact of the pandemic on our sector, we need to broaden our research footprint and focus on the consequences post covid and future preparedness.

At the heart of ACK's strategy is excellence in teaching and research. The College is committed to building a cohesive research and teaching environment where the benefits of both translate into society.

Finally, I want to thank our exceptional research community who work hard to elevate the College's research reputation.

Please feel free to contact ACK's Scientific Research Center to showcase your work.

My Regards,
Isam Zabalawi

ACK SIGNS TWO YEARS CO-OPERATION WITH LONDON SCHOOL OF ECONOMICS TO RESEARCH ADOPTION OF ELECTRIC VEHICLES IN KUWAIT



ACK has signed two years collaboration agreement on October 8 2021, to research the implementation of Electric Vehicles in Kuwait by **Dr Andri Ottesen** – School of Business. London School of Economics is generally known as the 3rd most prestigious university in UK and number 6 worldwide. This project is competitively funded and won the bid for 2021 against other universities and research institution in Kuwait. Every year the Middle East Center of London School of Economics awards 2 projects with 32,000 KWD each to conduct nationally important research within state of Kuwait. This award will be used to fund several studies about implementation of electric cars in Kuwait as well as building expertise and excellence in the field. The study is in several parts; capturing the experience of existing Electric Vehicles (EV) owners in Kuwait and how they see the future of EVs in Kuwait based on their experience; future outlooks of EVs sales from the perspectives of automobile dealers; capturing prior knowledge and attitude towards EVs from general vehicle owners in Kuwait; interviewing policy makers in the field of ground transport as to see how their vision on how mass EVs adoptions will mount to meeting the sustainable goals of Kuwait for 2035.

KFAS ANNOUNCES LIST OF APPROVED PROJECTS FOR FUNDING - CYCLE 1, 2021



The Kuwait Foundation for the Advancement of Sciences (KFAS) has announced the list of approved projects for funding – Cycle 1, 2021 (Total of 5 approved grants).

The specific areas of research in this call were related to Energy and Environment and Digital Transformation. ACK was the only academic institution in Kuwait to receive two approved grants in areas related to Oil Recovery and Digital Transformation. **Dr Vladimir Simovic** – School of Business – received a grant from KFAS on the Digital Entrepreneurial Competences Online Assessment Tool - A Step - Towards Digital Transformation of University Education. The areas of his professional interests are digital marketing, digital entrepreneurship, digital competencies, and information systems in business. Before joining the ACK, he was the Head of Business Economics Department at the Institute of Economic Sciences in Belgrade, Serbia. He is the participant of European COST Action on Artificial intelligence in business with 15+ years of experience in research and teaching.



The second approved KFAS grant was received by **Dr Hayder Salem**. This grant is in collaboration with University of British Columbia – Canada and related

to mechanics of bubbles in viscoplastic fluid. Gas kicks during drilling and destabilization of foamed cement are two risks facing the Kuwait oil and gas industry in expanding exploration and drilling operations. This project is about mitigating these risks. Both occurrences lead to dangerous situations in which gas bubbles may rise in an uncontrolled manner through a yield stress fluid (YSF), i.e. the drilling fluid or the cement slurry. The key rheological feature of these fluids is the yield stress: the material flows only if the imposed stress exceeds the yield stress. This raises questions regarding the stability of bubbles, as well as the mechanics of bubble migration/propagation in a YSF. The authors will try to answer these questions using both computations and experiments.

BIOMATERIALS AND ENGINEERING TOOLS FOR THE TREATMENT OF SKIN AND MUSCULOSKELETAL INJURIES



Conventional practices for the treatment of commonly observed medical problems such as chronic wounds and musculoskeletal injuries have shown limited effectiveness. To address this unmet need, micro-and nanoscale technologies are increasingly used. These technologies have merged with advanced materials to enable engineering constructs topographical and physical features of the native tissues.

In this presentation, **Dr. Tamayol** – An associate professor from Laboratory for Innovative Microtechnologies and Biomechanics at University of Connecticut Health Center discussed research progresses in developing solutions for the treatment of volumetric muscle and bone loss. He also discussed research in the areas of wound and skin care.

ENVIRONMENTALLY FRIENDLY HIGH-PERFORMANCE WATER-BASE DRILLING FLUIDS



In many parts of the world, operators prefer to use non-aqueous fluids (NAF) – drilling fluids that are oil-based-over water-based mud systems to drill challenging wells, mainly due to wellbore stability issues and lubricity. A new, more sustainable drilling fluid has been developed which reduces pollution and carbon emissions and improves the health conditions of workers. As part of the KOC environmental improvement strategy, KOC and Baker Hughes teams worked together to continuous fine-tune the system in order to deliver best results. In this presentation, **Eng. Heikal** an internationally recognized industry expert is focusing on environmentally friendly new technology to reduce pollution and improve the operation.



DO WE PROVIDE OUR UNIVERSITY STUDENTS WITH ENOUGH DIGITAL ENTREPRENEURIAL COMPETENCES?

Universities throughout the world provide students with knowledge and skills for digital entrepreneurship and prepare them for the dynamic labor market. Currently there is no measure to assess the level of digital entrepreneurial competences (DEC) acquired by the students during their formal university education. This workshop by **Dr Vladimir Simovic** and sponsored by KFAS will provide a roadmap to develop the methodology needed to measure the level of digital entrepreneurial competences acquired by students.

Date: Monday January 24th, 2022

Time: 7:00 p.m. (Online)



2022 KFAS CALL FOR RESEARCH PROPOSALS



The Research Directorate at KFAS has announced the 2022 Call for Research Proposals (February 1st, 2022 – March 31st, 2022). This Call will focus on Energy, Environment, and Digital Transformation and will be offering three grant types: Basic Research, Applied Research Grant and Young Researchers.

FOCUS AREAS

A. Energy Domain

The research proposal should address original and/or new and innovative approaches to practical solutions for national challenges as follows:

1. Energy Efficiency
2. Renewable Energy
3. Energy Consumption
4. Hydrogen Economy
5. Carbon Capture, Utilization and Sequestration (CCUS)

B. Environment Domain

The research proposals should address original and new or innovative approaches leading to practical solutions for the following national environmental challenges:

- 1- Climate Change
- 2- Air Quality
- 3- Biodiversity
- 4- Environment degradation.
- 5- Waste management.

C. Digital Transformation Domain

The research proposals should address original and new or innovative approaches leading to practical solutions which enable the integration of advanced technologies into sectors such as:

- 1- Education
- 2- Health
- 3- Finance/Business/Commerce/Private Sector
- 4- Society/Human and Organizational Aspect

FACULTY RESEARCH ACTIVITIES – DECEMBER 2021/2022

1. Abdullah K. Alanazi, **Seyed Mehdi Alizadeh**, Karina Shamilyevna Nurgalieva,, John William Grimaldo Guerrero, Hala M. Abo-Dief, Ehsan Eftekhari-Zadeh, Ehsan Nazemi and Igor M. Narozhnyy, Optimization of X-ray Tube Voltage to Improve the Precision of Two-Phase Flow Meters Used in Petroleum Industry, **Sustainability (Q2 Journal)**, 6/12/2021.

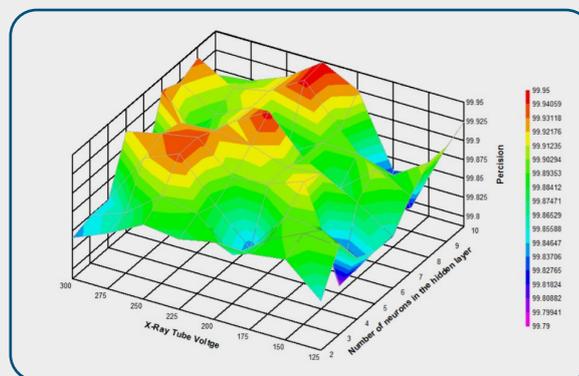


Figure 1. Precision of metering system in every X-ray tube voltage and number of neurons in the hidden layer

2. **Ahmed Bani Mustafa**, Sam Toglaw, Oualid Abidi, Ahmad Nimer, Do Individual Factors Affect the Relationship between Faculty Intrapreneurship and the Entrepreneurial Orientation of Their Organizations? **Economies (Q2 Journal)**, 16/12/2021.

Please share with us any updates on your research, scholarly, or creative activities. Updates may be related to a paper that has been accepted for publication in a high-impact journal, a book chapter you've just published, or other updates you wish to share with our Scientific Research Center. Send details to research@ack.edu.kw

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