جامعة قطر
QATAR UNIVERSITY

CAM
مركز المواد المتقدمة
Center for Advanced Materials

Center for Advanced Materials NEWSLETTER Issue 2

X-Ray Diffractometer (XRD) instrument located in the Center for Advanced Materials

May 2022

Inside this issue:

Achievements

Awarded Grants

Project-QU Internal Grant

LPI	Title
Dr. Abdul Shakoor	Smart design of novel inorganic self-healing UV-resistant coatings for scalable corrosion protection of galvanized steels strategy and mechanism for industrial applications

High Impact Grant

Collaborative grant

LPI	Title
Dr. Anton Popelka	Plasma treated polymeric membranes for gravity driven oil/water separation
Dr. Peter Kasak	Electrochemical deposition of binary alloy to activated carbide-based support for direct methanol fuel cell catalyst

National capacity Building Program grant

LPI	Title
Dr. Noora Hamad Al-Qahtani	Preparation of size-selected nanocluster alloys as electro and photocatalysts for oxygen reduction and water splitting

International Research Collaboration Co-Fund (IRCC)

LPI	Title
Dr. Abdul Shakoor	Nickel-based smart self-healing nanocomposite coatings for corrosion protection of steel
Dr. Mohammad Hassan	3D printing of smart materials with antimicrobial properties

National Priorities Research Program (NPRP 14S)

LPI	Title
Dr. Maryam Al-ejji	Multi-layered hierarchically porous membranes for high-quality wastewater treatment for irrigation purposes

Book publication

Qatar University (QU) published the first book on Reverse Osmosis (RO) Desalination in the Gulf region titled: "Reverse Osmosis Systems: Design, Optimization and Troubleshooting Guide," published by Elsevier, the most significant Science publisher. The book was released in December 2021 and is available online. The book is authored by Prof. Syed Javaid Zaidi and co-authored with Haleema Saleem from the Center for Advanced Materials, Qatar University.

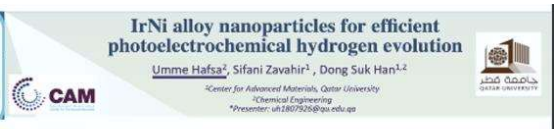
Achievements

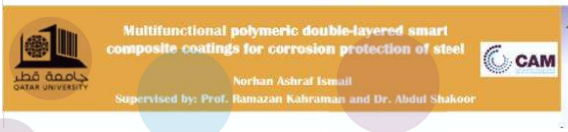
Awards

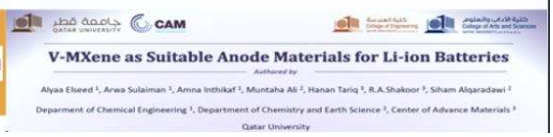
1. Dr. Shakoor's supervised project, "Development of lightweight Al-SiO_2 nanocomposites for automotive application-Qatar Electric Car - 2022," presented by Rashid Al-Asam and Azza Abouhashem at the 32nd ITEX 2021, Malaysia (13-14 December) wins the second place.

2. Dr. Abdul Shakoor and his research team won first place in the NSPP (National Science Promotion Program Qatar University) research projects and won the best student poster award.

3. CAM UREP student researchers (Supervised by Dr. Dong Suk Han and Dr. Abdul Shakoor) are affiliated with the Department of Chemical Engineering. Won four poster presentation awards at the 5th "My Gateway to Research" event organized by the Department of Chemical Engineering Qatar University.







UNESCO Chair in Desalination and Water Treatment

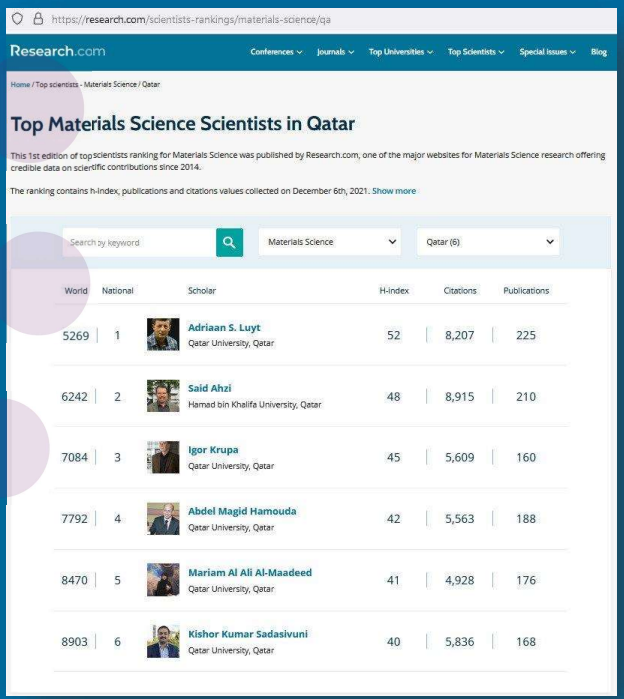
The UNESCO Desalination Chair established in Qatar at QU is the first of its kind in the Gulf region. It involves collaboration with more than 30 institutions and organizations in the region and globally. Such as Ottawa University, University of Alabama, Technical University of Berlin, University of South Africa, Istanbul Technical University, Nanyang Technological University, Texas A&M University - Qatar, Qatar Electricity and Water Company (QEWC), Sultan Qaboos University, and University of Technology Malaysia. It shall foster interdisciplinarity, promote collaboration and knowledge co-production, and strengthen the research-training-policy-society nexus. It shall also help promote international collaboration and capacity building in this strategic water treatment area. The Center for Advanced Materials will be the host center of the chair. Prof. Syed Javaid Zaidi from the Center for Advanced Materials was appointed as the holder of this research chair based on the approval from the UNESCO head office.

The UNESCO Chairholder, Prof. Syed Javaid Zaidi, is a Professor at the Center for Advanced Materials since July 2015. He has more than twenty-seven years of research and academic experience in desalination and water treatment, and membrane technology for energy and the environment. UNESCO Chair is also contributing to the UNESCO Encyclopedia of Life Support Systems, the World's largest Encyclopedia under the auspice of UNESCO. The Chair is also an honorary member of the Advisory Council of Arab Water desalination (ARWADEX).

"Top Materials Scientists in Qatar"

Prof. Mariam Al-Maadeed, Vice President for Research and Graduate Studies Qatar University and CAM researchers: Prof. Adriaan Luyt, Prof. Igor Krupa and Dr. Kishor Kumar Sadasivuni. Have been listed among the top materials science scientists in Qatar, published my Research.com

Research.com



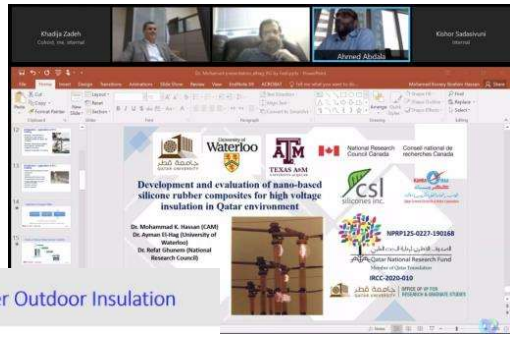
CAM Activities & News

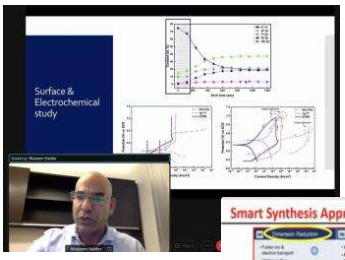
Seminars

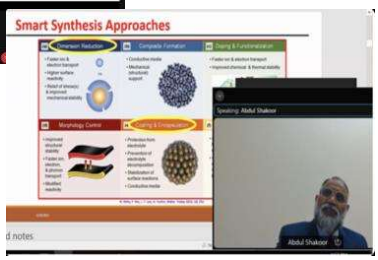
9 January 2022, Via WebEx

Title: "Development and Evaluation of Nano-based Silicone Rubber Composites for High Voltage Insulation in Qatar Environment".

Speakers: Dr. Mohammad Hassan (Center for Advanced Materials, Qatar University, Qatar), Dr. Ayman El-Hag (University of Waterloo, Canada), and Dr. Ghunem (National Research Council, Canada).







24 February 2022, Via WebEx

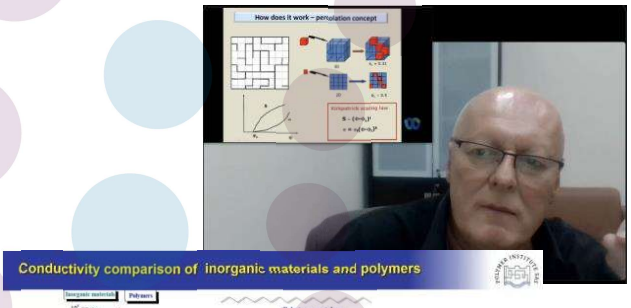
Title: Combinatorically Developed Metallic Glasses for Implantable Medical Devices.
Speaker-1: Dr. Waseem Haider, Central Michigan University.

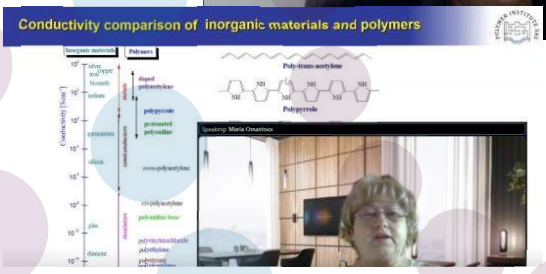
Title: 2D Nanomaterials for Energy Storage Applications.
Speaker-2: Dr. Abdul Shakoor, Qatar University.

31 March 2022, Via WebEx

Title: Polymeric Nanocomposites Based on MXene: Preparation, Properties and Applications.
Speaker-1: Prof. Igor Krupa, Center for Advanced Materials, Qatar University.

Title: Electrically Conductive Polymers and Composites.
Speaker-2: Prof. Maria Mamastova, Polymer Institute, Slovak Academy of Sciences.





CAM Activity & News

11 April 2022

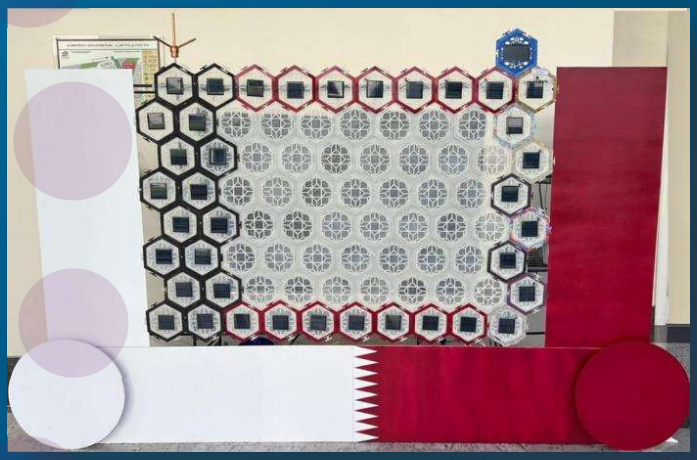
Title: Waste-Value Approach for Sustainable Environment.
Speaker-1: Dr. Dong Suk Han, Center for Advanced Materials, Qatar University.

Title: "Climate Change a Multi-Dimensional and Worldwide Challenge".
Speaker-2: Dr. Nejat Rahmanian, University of Bradford, UK.

Research Highlights

Participation in Qatar Museums' Public Art exhibition

As part of Qatar Museums' Public Art exhibition, Dr. Kishor's research team created a Smart wall at the Center for Advanced Materials, Qatar University . The synthesized conducting composites from waste carbon black particles and plastics were used as base materials to design conductive tiles. It provides lightning strike protection systems and solar panels are embedded in the tiles to utilize renewable energy. This energy can be used to recharge phones and other electronic gadgets. As an added feature, it can also display the humidity and temperature by incorporating some sensors.



QAFCO Research and Development Grant

Two CAM faculty were awarded the Phase-1 QAFCO industry grant with the research title:

- Dr. Dong Suk Han (Lead PI): Energy-saving membrane-based desalination hybrid process for zero liquid discharge (ZLD) in QAFCO plant.
- Dr. Kishor Kumar (Lead PI): IoT based smart RFID sensors for detection of volatile organic compounds (VOCs).

CAM Activity and News

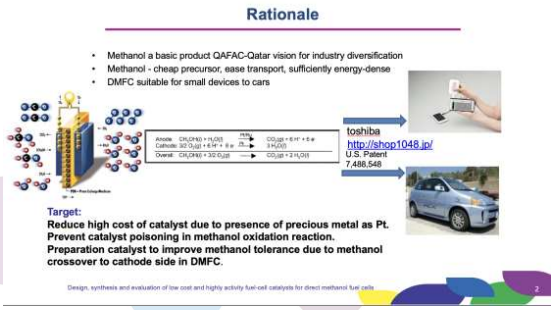
Special talks

27 January 2022

Dr. Mohammad Hassan presented a special talk entitled; “Block copolymer membrane for industrial wastewater treatment: Fabrication, testing, and scale-up”, which was supported by the American Chemical Society (ACS) Qatar Chapter.

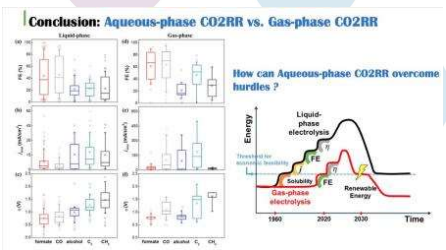
30 March 2022

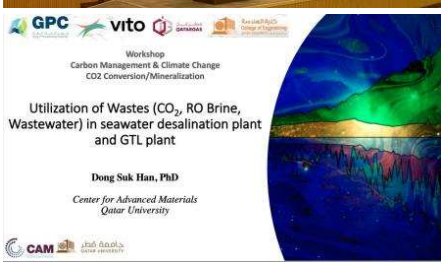
Dr. Peter Kasak delivered his talk in the QNRF Research Outcome Seminar in the field of Energy with the title of “Design, synthesis, and evaluation of low cost and highly active fuel-cell catalysts for direct methanol fuel cells”.



16 February 2022

Enlightening talk by Dr. Dong Suk Han (Research Associate Professor, CAM/QU) at the "Carbon Management and Climate change" workshop jointly organized by GPC/QU and VITO Belgium. Dr. Mohammed. K. Hassan (Research Assistant Professor, CAM/QU) chaired the scholarly session.





PEOPLE

Promotion and New Appointment

Dr. Abdul Shakoor
Research Associate

Dr. Abdul Shakoor, Research Assistant Professor, holds a Ph.D. degree in Materials Engineering. He is the Principal Investigator of the Advanced Multifunctional Materials Laboratory (AMFML) at the Center for Advanced Materials (CAM), Qatar University (QU), Doha, Qatar. He is conducting active research on the synthesis and characterization of advanced materials for diversified applications. His research interests include developing novel cathode/anode materials for sodium/lithium rechargeable batteries, smart self-healing and nanocomposite coatings, Ni-P/Ni-B based nanocomposite coatings for corrosion protection, and aluminum metal matrix nanocomposites for automobile/aerospace applications. His professional accomplishments consist of 153 SCI-indexed international journals articles (citations-4078, h-index-33, and i-10 index-86), 122 presentations at local and international conferences, 3 patents, and 6 book chapters so far. Currently, he manages 26 local/international research funding grants and supervision/co-supervision of many undergraduate, graduate, Ph.D. students, and Research Assistants in Qatar and abroad. His innovative work and commendable professional contributions have distinguished him among the top 2% of world scientists in his research field consecutively for the years 2019 and 2020, according to an annual survey/report conducted by Stanford University, USA.

Dr. Kishor Kumar Sadasivuni
Research Associate

Dr. Kishor Kumar Sadasivuni is currently working as a Research Assistant Professor and the group leader of Smart-Nano-Solutions at the Center for Advanced Materials, Qatar University. He received his Ph.D. in Materials Science and Engineering from the University of South Brittany in Lorient, France. He has been included in the world's top 2 % scientists according to a list compiled by Stanford University in the year 2019 and for this, he was recently honored by Qatar University. Dr. Kishor has more than 300 research articles published in international peer-reviewed journals with a total citation of 7850 and an h-index of 48. He is also the author of 20 book chapters and the editor of 10 books. He is a group leader and is presently the lead principal investigator for 11 research projects, covering the NPRP, UREP, and IRCC grants of Qatar National Research Fund, and Qatar University. He is also involved in other three research grants as the principal investigator, summarizing a total grant amount of 3M$. Dr. Kishor is a team player and has collaborated actively with researchers (more than 450 co-authors as evident from the Scopus data) in several disciplines of computer science, biomedical sciences, industrial engineering, and electrical engineering from all over the world. Dr. Kishor's achievements have been recognized by several awards such as Tyre & Rubber Industry Leadership Acknowledgement Awards (TRILA); Young Research Scholar of the Year 2017. Dr. Kishor is serving as the managing editor for Emergent Materials, the QU-supported Springer-Nature journal.

CAM Visitors

His Excellency Mr. Badi bin Ali Al-Badi, Member of the Qatar Shura Council visited CAM – Center for Advanced Materials/center along with Qatar University dignitaries to inspect the reality of the Center and review the research projects and the most important achievements and research outputs such as prototypes of projects.

Dignitaries from VITO Belgium visited CAM to share potential collaborative research activities on materials that can be applied in the fields of Environment, Water, Energy, and Construction.

Qatar Shell Research and Technology Centre (QSRTC) and Dutch Shell's Waste-to-Value Teams visited CAM's faculty lab (Dr. Dong Suk Han and Dr. Peter Kasak) to discuss the ongoing NPRP project and potential research collaboration.

Prof. Enrico Drioli, a Plenary speaker at the 2022 World Congress on Sciences and Applied Sciences, visited CAM to discuss water technology. He is a scholar leading membrane distillation in the world for water desalination and resource recovery.

CAM's Notice

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