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| |  | | --- | | **Aggie Pipeline** | |
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Dr. Elbashir (highlighted) Qatar’s experience in natural gas monetization and the expectations of growth in natural gas downstream processing utilization the shale gas of the state of Texas. He also identified possible collaboration models between academia and industry to speed up technology development.  **The launching of 2016-2017 ORYXGTL Seminar series**  October 9, 2016, Doha The Chemical engineering program presented the first seminar of the 2016-2017 ORYXGTL seminar series. The speaker, Dr. Wolfgang Arlt, delivered a seminar titled “Safe and dense chemical storage of renewal energy via the hydrogen route: Liquid Organic Hydrogen Carrier (LOHC). Dr. Arlt is a full professor and chair at University of University of Erlangen and director of the high pressure laboratory; director of Energy Campus Nuremberg. Upcoming seminars will be delivered on November 20th by Prof. Paul Barton, the Lammot du Pont Professor of Chemical Engineering and Director of the Process Systems Engineering Laboratory at MIT, titled “Optimal design and operation of natural gas value chains” ; and on November 23rd by Prof. Chris Hardacre is currently Head of the School of Chemical Engineering and Analytical Science at the University of Manchester titled “Heterogeneous Catalysis: From new in-situ methodologies to the formulation of new catalysts”. The ORYXGTL seminars very successfully presented professors and scholars from of the most prestigious universities in the world as part the GFRC and ORYXGTL Excellence Program (2015-2018) Dr. Tobin J. Marks, Northwestern University and others  **Natural Gas Monetization from Midstream to Downstream Module lecture by Dr. Nimir Elbashir, HBKU** May, 2016, Doha Dr. Nimir Elbashir (the Director of the GRFC) delivered a module on “Natural Gas Monetization from Midstream to Downstream” for the Energy Executive Program of Hamad bin Khalifa University (HBKU). This program has been developed by HBKU for Qatari’s and expatriates who are working on Energy and Facilities companies in Qatar to provide them an in-depth understanding of the role of energy and resources in modern life and it integrate disciplines of geopolitics, public policy, technology, finance, management etc. Dr. Elbashir course provide an in depth assessment of the role of natural gas in the global energy market and especially for Qatar economy.  The course, which is the part of the GFRC outreach activities in Qatar, provided technical, environmental and ecpominicmal assessment t of the natural gas monetization technologies.  **Texas A&M University at Qatar launches the ORYX GTL Gas-to-Liquid Excellence Programhttp://gfrc.tamu.edu/wp-content/uploads/2015/10/ORYX-Sign_201015_ALX_4994.png**  October 20, 2015, Doha, Qatar  Texas A&M University at Qatar in collaboration with founding supporter ORYX GTL has launched the ORYX GTL – Gas-to-Liquid Excellence Program to prepare the highly skilled engineers and technical staff needed to lead and operate Qatar’s world-class industrial facilities. ORYX GTL will fund the program for five years beginning in 2015, with the option to continue its support beyond 2020.  **Interviews**   **Interview (1) with Dr. Aziz Rahman, Assistant Professor, Petroleum Engineering Program , TAMUQ, New GFRC Faculty Affiliate** **Area of expertise relating to gas and fuels:**Research interest and expertise in the fields of flow assurance, multiphase flow in wells, multiphase flow in porous media, turbulence, pipeline hydrotransport, slurry transport, CFD, PDPA, LDA, PIV, shadowgraph, high-speed imaging and high-response pressure measurement.     **Research projects that you are currently working on:**   * Abnormal flow and its effect on structural integrity. * Gas kick in Managed Pressure Drilling * Pipeline and wellbore leak detection * Horizontal, vertical, and inclined multiphase flow assurance in pipelines and wellbores * Slug flow, hydrate flow, bubble dominated flow, and droplet laden flow. * Multiphase flow through porous media * CFD using ANSYS platform * LNG fire, pool fire and domino effects   **Your Vision for GFRC:**My research background in multiphase flow experiments and Computational fluid dynamics (CFD) of both academic (fundamental) and industrial (applied) research contributions have been documented in more than sixty refereed journals and conference proceedings. The long-term goals with GFRC are as follows:   * To contribute to the development of technology that enhances the sustainability and environmental performance, including conventional and non-conventional (heavy) oil production, multiphase flow, multiphase atomization, renewable energy and interdisciplinary research; * To contribute directly to the advancement and application of multiphase computational models, which presently are in their infancy; * To train students and postdoctoral fellows.   **Facilities:**  The Advance Multiphase Flow Assurance and Production Laboratory, Texas A&M at Qatar has the following experimental and computational facilities:   * Multiphase flow loop (will be installed by the Fall, 2016). * Foam flooding for EOR and formation damage application. * Computational Fluid Dynamics.   **Involvement on Educational and Outreach activities:**   * Texas A&M University faculty senator. * Session Chair, Technical Session 36: Underbalance Unmanaged Pressure Drilling, 20th Middle East Oil & Gas Show and Conference (MEOS), Manama, Bahrain, 6-9 March 2017. * Organizer, Joint Petroleum Engineer and Chemical Engineering Workshop, Texas A&M University at Qatar, Doha, Qatar, September 4, 2016. * Member Secretary, International Conference on Petroleum Engineering (ICPE 2016), 31st December 2016, BUET, Dhaka, Bangladesh. * Instructor, Seminar on the Fundamentals of Multiphase Flow, January 1, 2017, BUET, Dhaka, Bangladesh. * Instructor, Seminar on the Fundamentals of Multiphase Flow, May 31, 2016, Texas A&M University at Qatar, Doha, Qatar, September 4, 2016. * Instructor, Short Course on Gas Lift, Workshop on Computational Methods with Applications to Oil and Gas, February, 28-29, 2016, Doha, Qatar. * Topic Co-Organizer, OMAE2016, General Petroleum Technology, Busan, South Korea, 2016. * Topic Co-Organizer, OMAE2015, General Petroleum Technology, St. John’s, NL, 2015.   **Model for Collaborations with Academia and Industry:**Academia:  I actively collaborate with professors and research labs around the globe. I currently collaborate with Dr. Imtiaz and Dr. Hossain (Process Engineering at Memorial University), Dr. Alam (Mathematics at Memorial University), Dr. Hasan (Petroleum Engineering at Texas A&M University, College Station), Dr. Awad (Mechanical Engineering, Mansoura University, Egyp), Dr. Hassan (Mechanical Engineering, Texas A&M University at Qatar), and Dr. Bashir (Chemical Engineering, Texas A&M University at Qatar). We perform collaborative research, graduate student supervision, thesis committees’ examination, and joint proposal writing.   Industry: I am heavily involved in all aspects of the technology development cycle, from meeting with industry experts to hear about their problems, to developing a research program that elucidates the governing physical mechanisms of the problem at hand, to leading a research team and finally to commercializing the results. My track record in research and technology development is clear. For an example, with research collaboration with Syncrude R&D, I developed a scaling law for multiphase flow. This scaling law will be a useful tool for industrial multiphase flow technology development.  https://gallery.mailchimp.com/81899960d12dc343207919d7d/images/ad7a6083-9b1b-46e6-9671-51a58250dae6.png     **Interview (2) with Dr. M. M. Faruque Hasan, Assistant Professor, Assistant Professor Artie McFerrin Department of Chemical Engineering, TAMU, New GFRC Faculty Affiliate**  **Area of expertise relating to gas and fuels:**Process Intensification, Multiscale Modeling and Optimization, Process Integration, Carbon Capture and Utilization, Natural Gas Utilization   * **Research projects that you are currently working on:** * Systematic Process Intensification (SPI) Methods, * Multiscale Methods Development for Combined Materials and Process Design. * Intensification of Natural Gas Separation and Storage in a Single Unit, * Derivative-Free Optimization for Gas and Fuels Systems, * Process Synthesis for Combined CO2 Capture and Conversion to Chemicals and Fuels.   **Your Vision for GFRC: I envision that GFRC**GFRC will be a global leader and a center for excellence in gas and fuels research. I also envision that GFRC will continue fostering young investigators and affiliates in their cutting-edge energy research and professional development and provide avenues for high-risk but highly rewarding research.  **Facilities:**Access to TAMU computing cluster (Ada),*Computational Equipment for Exclusive Use: (Workstations)*>10 Dell Optiplex 9020 workstations each with i7-4770 3.4 GHz Turbo, Quad Core, 8GB DDR3 memory, running Springdale PUIAS, for exclusive use of the group members. *(Webserver:)*Dell PowerEdge R520: 2 Intel Xeon E5-2470 Processors, 2.30 GHz, 32GB memory, running Springdale PUIAS.*Scientific Software*: various scientific, commercial and open-source software packages for optimization (GAMS with CPLEX, CONOPT, BARON, ANTIGONE, and DICOPT solvers), process simulation (gPROMS, Aspen Plus, MATLAB), data analysis, management and development (c++, python, Wordom, gnuplot, etc.), and molecular simulation (RASPA, MCCCS Towhee, Music, CHARMM, NAMD).  **Involvement on Educational and Outreach activities:**   * has developed a graduate course focusing on chemical process intensification, * teaches an undergraduate course on process economics, simulation and integration, * offered many undergraduate research projects   **Model for Collaborations with Academia and Industry:**My group is based on fundamental research on optimization to address important challenges arising in the design and operation of modern chemical industries. Therefore, we always look for challenging problems from the energy, chemical and power sectors and collaborate with them to provide systematic and optimal solutions. https://gallery.mailchimp.com/81899960d12dc343207919d7d/images/ec0250f7-7b16-448b-8d85-207c6d430db3.jpg | | | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | https://cdn-images.mailchimp.com/icons/social-block/color-facebook-128.png |  | | https://cdn-images.mailchimp.com/icons/social-block/color-twitter-128.png |  | | https://cdn-images.mailchimp.com/icons/social-block/color-forwardtofriend-128.png |  | |  |  | | --- | | https://gallery.mailchimp.com/81899960d12dc343207919d7d/images/0edf9ea2-a01a-4971-8365-eeb89a2aa255.jpg  **GFRC awarded a seed fund for a jet fuel project**  In June 2016, Dr. Waruna Kulatilaka (Department of Mechanical Engineering, TAMU) and Dr. Nimir Elbashir (Chemical Engineering Program, TAMUQ) have received a seed fund from Texas A&M Qatar and the Faculty of Engineering (TAMU) to support the GFRC competitive proposal that is focused on establishing collaborative research efforts between Texas A&M Qatar and TAMU using the existing infra structure of the fuel characterization lab at TAMUQ and the fuels combustion facilities at TAMU. This proposal is aiming at building the base for a major proposal for SHELL as they express their interest to work with Texas A&M University in mega research related to advancing the use of GTL aviation fuels by Qatar Airways. Also, it aims at building up a proposal for the US Navy who has major research funds in the area of synthetic aviation fuels. The technical scope of this proposal is to identify the combustion behavior of the optimized fuels compositions obtained from natural gas via the Gas-to-Liquid technology (GTL) using ten major blends representing typical GTL jet fuels and blends with conventional crude-oil jet fuels. | | https://gallery.mailchimp.com/81899960d12dc343207919d7d/images/daf37a8a-3eb3-41ba-8f95-d6ec35975869.jpg  **Upcoming**  The ORYX GTL Excellence Program in the Gas-to-Liquid Technology is a product of a unique collaboration model between ORYX GTL and Texas A&M University at Qatar. The ORYX GTL Excellence Program is aimed at advancing Qatar’s leading role in the gas-to-liquid (GTL) field and build teaching, training and research excellence in natural gas processing for value-added chemicals and fuels. Dr. Nimir Elbashir, Professor of Chemical and Petroleum Engineering at Texas A&M University Qatar and the Chair of the ORYX GTL Program stated that “the uniqueness of the ORYX GTL program is that it aims at supporting Qatar’s 2030 vision in building human and research capital in the clean energy field”. The program has developed a special training program for the ORYX GTL employees, both technical and non-technical, to introduce them to the Fundamentals of Natural Gas Processing and the GTL Technology, to be offered in October 2016 and in February 2017. Also, the ORYX GTL Excellence Program offered the employees an opportunity to join a special training on “Electrical Transformers and Switchgears; Faults, Inspection, Testing, Maintenance and Troubleshooting” conducted by Texas A&M University at Qatar which was held on 18-21 September 2016. This course introduces the principles of design, testing, operation and maintenance of transformers in power systems and provide the participants with the necessary knowledge on the power and distributed transformers typically used for oil and gas industry. This course has been designed to provide participants with an understanding of the proper construction, operation, and maintenance of power transformers, while emphasizing on the technology related to power transformers used within the industry power systems. Four ORYX GTL technical staff have been sponsored by the program to participate in this course and they successfully completed the four-day program on 21 September 2016 | | | |
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