

## The 29th Annual Saudi-Japan Symposium

The 29th Annual Saudi-Japan Symposium was held at KFUPM Dhahran Techno Valley on November 3 and 4, 2019, jointly hosted by 4 entities: Saudi Aramco, King Fahd University of Petroleum & Minerals (KFUPM), The Japan Petroleum Institute (JPI) and JCCP.

In the opening, honorable guests presented their remarks. Notably, H.E. Dr. Sahel Abuduljawwad, Rector of KFUPM, Mr. Ahmed Al-Khowaiter, CTO of Saudi Aramco, Mr. Eiji Hiraoka, Senior Executive Director of JCCP and Dr. Keiichi Tomishige, The Captain of The Japan Petroleum Institute (JPI) of delegation and Professor of Tohoku University. In the Keynote Speech, Dr. Jinichi Igarashi, Vice President of JPI and President of JX Research, gave a lecture.

The symposium attracted an unusually large audience of more than 140 researchers, students and Japanese companies' representatives in the region. The symposium theme of this year was "Technology in Petroleum Refining & Petrochemicals" and there were 23 presentations (of which 6 were made by Japanese presenters sent for this symposium). The symposium covers new fields ranging from catalyst development by utilizing AI, Crude oil to Chemicals process etc. Among the lecturers, female researchers made lectures, and posters session a noteworthy event in the symposium's long history. Between presenters and audience, many active questions and answers were exchanged.

Prior to the symposium, six speakers attended ChemIndix 2019 held in Bahrain on October 29-31 at the request of Saudi Aramco. JPI Igarashi Vice Chairman participated in the panel discussion, and five speakers gave lectures at each session, and there was a lively exchange of questions and answers.

【Opening】



【Scene from the symposium】





## Technology in Petroleum Refining & Petrochemicals

Venue: KFUPM Dhahran Techno Valley, Innovation Cluster Bldg., Auditorium 1111: Nov. 3-4, 2019

### Day One: Sunday, November 3, 2019

#### 8:30 OPENING REMARKS SESSION

Chairman: *Dr. Hassan Al-Asiri*

1. H.E. Dr. Sahel Abuduljawwad, Rector, KFUPM
2. Mr. Eiji Hiraoka, Senior Executive Director, JCCP
3. Mr. Ahmed Al-Khowaiter, CTO, Saudi Aramco
4. Dr. Keiichi Tomishige, Professor, Tohoku University

#### SESSION ONE FUTURE REFINING TRENDS

Chairman: *Dr. Keiichi Tomishige*

- 9:00 1. **Keynote:** Technical trends and research topics in the Japanese refining industry  
*Dr. Jinichi Igarashi, JX Nippon Research Institute, Ltd.*
- 9:30 2. An economic perspective of light naphtha upgrading  
*Dr. Yaming Jin, Dr. Omer R. Koseoglu, Saudi Aramco*
- 9:50 Coffee Break

#### SESSION TWO NEW CHALLENGES: CHEMICALS/FUELS

Chairman: *Dr. Omer R. Koseoglu*

- 10:15 3. **Keynote:** Recent advances in zeolite catalysis for production of petrochemicals  
*Dr. Suheil Abdo, Honeywell UOP, USA*
- 10:45 4. Catalyst technology to maximize light olefin yield in FCC unit  
*Dr. Takaki Mizuno, Petroleum Refining Catalysts Research Center, R&DC, JGC C&C Lt*
- 11:05 5. Recent advances and overviews of Ni(Co)Mo supported mesoporous silica catalysts for HDS activity of liquid fuel, *Dr. Saheed Ganiyu, Dr. K. Alhooshani, Dr. A. Tanimu, KFUPM/CHEM*
- 11:25 6. Effects of titania coatings on HDS catalysts: insights from first principles calculations  
*Dr. Hiroki Iriguchi, Central Technical Research Lab., JXTG Nippon Oil & Energy Corp.*
- 11:45 Prayer & Lunch Break

#### SESSION THREE NEW CHALLENGES: PROCESS/FUELS

Chairman: *Dr. Mamdouh Al-Harathi*

- 13:00 7. Application of inferential models to crude distillation process: integrating laboratory feedback in closed-loop quality control, *Dr. Rashid Ansari, Saudi Aramco*
- 13:20 8. Catalytic dealkylation of alkyl polycyclic aromatic hydrocarbons towards innovation of petroleum refinery, *Dr. Naonobu Katada, Center for Research on Green Sustainable Chemistry, Tottori University*
- 13:40 9. Selective aerobic oxidation of hydrocarbons by N-hydroxyphthalimide-based catalyst for cetane enhancement, *Dr. Maryam Altaher, C. Kalamaras, M. Alqahtani, Saudi Aramco*

#### POSTER SESSION

- 14:00 14 Poster contributions from KFUPM Chemistry, CENT, CRP and Jazan University-CHE
- Reviewing and commending excellent poster presentation (5-min each)
- 15:30 Day One Ends

Each presentation includes 5-minutes Q&A

<http://catsymp.kfupm.edu.sa/>



## Technology in Petroleum Refining & Petrochemicals

Venue: KFUPM Dhahran Techno Valley, Innovation Cluster Bldg., Auditorium 1111: Nov. 3-4, 2019

### Day Two: Monday, November 4, 2019

#### SESSION FOUR NEW CHALLENGES: CATALYST TECHNOLOGY -1 Chairman: Dr. Khalid Alhooshani

8:00 Registration & Coffee Break

8:20 10. Catalytic technology for production of C4 chemicals via erythritol from biomass

*Dr. Keiichi Tomishige, Dept. Applied Chemistry, Tohoku University*

8:40 11. Effects of residual catalyst structure and electronic environment on polyethylene crystallization and degradation, *Dr. Muhammad Atiqullah, KFUPM/CRP*

9:00 12. Sintering- and coking- resistant core-shell nanoparticles in dry reforming of methane

*Dr. Noor Al-Mana, Saudi Aramco*

9:20 13. Oxidative dehydrogenation of propane to propylene over VO<sub>x</sub>/CaO-γAl<sub>2</sub>O<sub>3</sub>

*Dr. M. Mozahar Hossain, KFUPM/CHE, Saudi Aramco*

9:40 Coffee Break

#### SESSION FIVE NEW CHALLENGES: CATALYST TECHNOLOGY -2 Chairman: Dr. Ali Alzaid

10:00 14. Effect of catalyst dilution and binders on the alkylation activity of USY zeolites

*Dr. Mohammed R. Aldossary, Vladimir Zholobenko, Arthur Garforth, Saudi Aramco*

10:20 15. Heavy naphtha reforming of C<sub>12</sub> over variable-morphological MFI zeolites, *Dr. Oki Muraza, M. Sanhoob, E. Shafei, M. Al-Bahhar, A. Al-Jishi, K. Choi, A. Khan, KFUPM/CHE-CENT, Saudi Aramco*

10:40 16. New generation of naphtha reforming catalysts, *Dr. Ali Jahel, Axens, France*

11:00 17. The effect of zeolite crystal structure on hydrocarbon conversion, *Dr. Mohammad Al Bahhar, E. Al-Shafei, A. Al-Jishi, O. Muraza, M. Sanhoob, A. Jamil, K-H. Choi, A. Alnaser, H. Al-Badairy, Saudi Aramco*

11:20 18. Machine learning approach for prediction of reaction yield with simulated catalyst parameters, *Dr. Akira Yada, National Institute Adv. Industrial Science & Technology (AIST)*

11:40 Prayer & Lunch Break

#### SESSION SIX CRUDE TO CHEMICALS/CRACKING Chairman: Dr. Naonobu Katada

13:00 19. **Keynote:** Advancing the frontier in shape selective catalysis to enable the production of petrochemicals in the modern refinery, *Dr. Eelco Vogt, Advisor Albemarle, Utrecht University*

13:30 20. Upgrading oil using a non-conventional charged droplets approach

*Dr. Chanbasha Basheer, KFUPM/CHEM*

13:50 21. Catalytic cracking of pentene to propene and ethene over ZSM-5 zeolite

*Dr. Abeer Arjah, Dr. Arthur Garforth, Saudi Aramco*

14:10 22. Application of hierarchical zeolites in FCC catalyst, *Dr. Shakeel Ahmed, KFUPM/CRP*

14:30 23. Crude oil-to-chemicals in the global petrochemical industry: Applications of nano-technology, *Dr. Tawfik A. Saleh, KFUPM/CHEM*

14:50 Closing Remarks, Symposium Ends

Each presentation includes 5-minutes Q&A

Program as of October 13, 2019

For Registration (Free): <http://catsymp.kfupm.edu.sa/register.htm>

Phone 013 860 2029

**29<sup>th</sup> Annual Saudi-Japan Symposium – 2019**

الامكو السعودية  
Saudi Aramco



**Technology in Petroleum Refining & Petrochemicals**

*Venue: KFUPM Dhahran Techno Valley, Innovation Cluster Bldg., Auditorium 1111: Nov. 3-4, 2019*

**Day One: Sunday, November 3, 2019**

**POSTER SESSION (TIME: 14:00-15:30)**

01. **Synthesis of Nickel/zeolite catalyst by chemical deposition: pathway to highly dispersed and stable Nickel catalyst**, *Yahia Hakmi, KFUPM-Chemistry.*
02. **Facile synthesis of ultrathin interconnected carbon nanosheets as a robust support for small and uniformly-dispersed iron phosphide for the hydrogen evolution reaction**  
*Munzir Suliman, KFUPM-CENT/Chemistry.*
03. **Investigating the effect of Ammonium Fluoride (NH<sub>4</sub>F) Media in Synthesis and Characterization of a Metal Containing Zeolite Catalyst Material**  
*Alhassan Ibrahim, KFUPM-Chemistry.*
04. **Sodium Octanoate Functionalized Graphene Oxide (SO-GO): A Green Corrosion Inhibitor for Oil Well Acidizing Environment**, *Kabiru Haruna, KFUPM-Chemistry.*
05. **Pd-NHC - Catalyzed Effective Synthesis of Biaryl ketones and Biaryl diketones by Carbonylative Suzuki-Miyaura Coupling Reactions**  
*Waseem Mansour, KFUPM-Chemistry.*
06. **Modified ZSM-5 Supported NiMo-S for Hydrodesulfurization application**  
*Umar Mustapha, KFUPM-Chemistry.*
07. **Novel mesoporous cobalt iron sulfide for efficient hydrogen evolution reaction**  
*Dr. Alaadin Adam, KFUPM-CENT.*
08. **Effect of Si/Al Ratio of MFI-type Zeolite Catalyst on Light Naphtha Aromatization**  
*Mohammed Ellouh, KFUPM-CRP.*
09. **Synthesis of Methyl t-Butyl Ether using low cost activated carbon-based catalyst**  
*Dr. M. Ashraf Ali, ChE-Jazan University.*
10. **Carbon Nanofiber-Doped Zeolite as Support for Molybdenum Based Catalysts for Enhanced Hydrodesulfurization of Dibenzothiophene**  
*Islam Ali, T. A. Saleh, KFUPM-Chemistry.*
11. **Hydrodesulfurization of Dibenzothiophene over NiMo Dispersed on Carbon-TiO<sub>2</sub> Composites**, *Umar Cheche Abubakar, KFUPM/Chemistry.*
12. **SOMC-generated single-site VO<sub>x</sub> species on silica for ODH of propane**  
*Dr. Samir Barman, KFUPM-CRP.*
13. **Effect of Screw Speed and Material Type on the Energy Consumption of Multiscrew Extruders**, *Dr. Mansour Albareeki, KFUPM-CRP.*
14. **LaCO<sub>3</sub>OH Nanoprisms: Photoluminescence and toxic NO<sub>x</sub> reduction properties**  
*Dr. Hassan Zahir, KFUPM/CoRE-RE*
15. **Removal of Polyromatic hydrocarbon (PAH) Pollutant from Contaminated Water Using Modified MWCNT**, *Adeola Akeem Akinpelu CEW/RI*
16. **Synthesis of ZnO/RGO Catalysts for Photocatalytic Degradation of Basic Blue**  
*Khaled M. AlAqad, Chemistry, KFUPM*
17. **Kinetics of oxidative cracking of propane to propylene Over VO<sub>x</sub>/CaO-Al<sub>2</sub>O<sub>3</sub>**,  
*Hussein K. Amusa, CHE/KFUPM.*