The 30th Annual Saudi-Japan Symposium

The "30th Japan Saudi Arabia Joint Symposium" was held online on December 13th and 14th, jointly-hosted by 4 entities: Saudi Aramco, KFUPM, The Japan Petroleum Institute (JPI), and JCCP.

In the opening, honorable guests presented their remarks. Notably, H.E. Dr. Muhammad M. Al-Saggaf, President of KFUPM, Mr. Eiji Hiraoka, Senior Executive Director of JCCP, Mr. Ahmed Al-Khowaiter, CTO of Saudi Aramco and Mr. Takashi Matsushita, President of The Japan Petroleum Institute (JPI). In the keynote speech, Prof. Jorge Gascon, Director, KAUST Catalysis Center (KCC), KAUST Circular Carbon Initiative and Mr. Takashi Matsushita, President of JPI, Executive Vice President of Idemitsu Kosan Co.,Ltd., gave lectures.

The symposium attracted an unusually large audience of more than 150 researchers, students and Japanese companies and Embassy of Japan in Saudi Arabia. The symposium theme of this year was "Technology in Petroleum Refining & Petrochemicals - Innovation towards Circular Carbon Economy" and there were 18 presentations (of which 7 were made by Japanese presenters.) The symposium covers new fields ranging from such as carbon recycling, low carbon technology, and carbon dioxide utilization technology, etc. in addition to catalyst related technology and process. In poster session, 10 young researchers (including 2 from Japan) made presentations. Many questions and answers were actively exchanged between presenters and audience.

【Opening Remarks】

Chairman: Dr. Hassan Al-Asiri, Director, KFUPM

Dr. Muhammad M. Al-Saggaf
President, KFUPM

Mr. Eiji Hiraoka
Senior Executive Director, JCCP

Mr. Ahmad O. Al-Khowaiter
CTO, Saudi Aramco

Mr. Takashi Matsushita
President, The Japan Petroleum Institute, JPI

30th Annual Saudi-Japan Symposium – 2021

Technology in Petroleum Refining & Petrochemicals

Innovation towards Circular Carbon Economy

Online Symposium (Zoom Webinar): December 13-14, 2021

Day One: Monday, December 13, 2021

OPENING REMARKS SESSION — ***Chairman: Dr. Hassan Al-Asiri, Director, KFUPM***

8:30 Opening Remarks

- *Dr. Muhammad M. Al-Saggaf, President, KFUPM*
- *Mr. Eiji Hiraoka, Senior Executive Director, JCCP*
- *Mr. Ahmad O. Al-Khowaiter, CTO, Saudi Aramco*
- *Mr. Takashi Matsushita, President, The Japan Petroleum Institute, JPI*

SESSION ONE FUTURE REFINING TRENDS — ***Chairman: Prof. Keiichi Tomishige, Tohoku University***

9:00 **1.** **Keynote: Efficient CO_2 utilization through heterogeneous catalytic processes,** *Prof. Jorge Gascon, Director, KAUST Catalysis Center (KCC), KAUST Circular Carbon Initiative*

9:30 **2.** **Keynote: Future trends in petroleum industry,** *Mr. Takashi Matsushita, President of JPI, Executive Vice President of Idemitsu Kosan Co.,Ltd., Japan*

SESSION TWO CARBON RECYCLING: LOW CARBON TECHNOLOGY — ***Chairman: Prof. Khalid R. Alhooshani, Chemistry Department, KFUPM***

10:00 **3.** **Technology challenges and opportunities in carbon capture and utilization in process industry,** *Dr. Aqil Jamal, Chief Technologist, Saudi Aramco R&DC*

10:20 **4.** **Preparation of self-sulfur-doped activated carbon from petroleum coke for electrochemical energy storage,** *Dr. Md. Abdul Aziz, KFUPM Interdisciplinary Research Center for Hydrogen & Energy Storage*

10:40 **5.** **The joint study on GHG emissions reduction technology from well to wheel perspectives in Japanese automotive fuel value-chain,** *Mr. Kenichiro Saito, ENEOS Research Institute Ltd., Japan*

11:00 **6.** **Carbon recycling technology perspectives for CO_2 emission reduction,** *Prof. Takao Nakagaki, Waseda University, Japan*

11:20 **7.** **Recycle processes from waste plastics to chemical feedstock,** *Prof. Toshiaki Yoshioka, Tohoku University, Japan*

11:40 Prayer & Lunch Break

SESSION THREE LOW CARBON TECHNOLOGY: CARBON DIOXIDE UTILIZATION — ***Chairman: Dr. Aqil Jamal, Saudi Aramco***

13:00 **8.** **Visible-light driven redox system for CO_2 conversion into valuable organic materials,** *Prof. Yutaka Amao, Osaka City University, Japan*

13:20 **9.** **CO_2 assisted oxidative dehydrogenation of hydrocarbons to produce olefins,** *Dr. M. Mozahar Hossain, KFUPM Chemical Engineering*

13:40 **10.** **Bifunctional tandem catalysts for the one-pass synthesis of lower olefins via CO_2 hydrogenation,** *Dr. Shohei Tada, Ibaraki University, Japan*

14:00 Day One Ends

Each presentation includes 5-minutes Q&A

Technology in Petroleum Refining & Petrochemicals

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Online Symposium (Zoom Webinar): December 13-14, 2021

Day Two: Tuesday, December 14, 2021

SESSION FOUR CATALYST TECHNOLOGIES — ***Chairman: Prof. Teruoki Tago, Tokyo Institute of Technology***

8:30 **11.** **Catalytic light alkanes conversion: Is it contributable on the way to carbon neutral realization?,** *Prof. Wataru Ueda, Kanagawa University, Japan*

8:50 **12.** **Development of versatile spheroidal $MgCl_2$ polyolefin catalyst support and related innovation and spin-off challenges,**
Dr. Muhammad Atiqullah, KFUPM Center for Refining & Advanced Chemicals

9:10 **13.** **Advanced FCC catalyst design for LPG production,**
Dr. Yusuke Takamiya, JGC C&C Ltd., Japan

9:30 **14.** **Dearylation: a new process to enhance BTX yields in an aromatics recovery complex,**
Mr. Marwan Khayyat, Saudi Aramco R&DC

9:50 **15.** **Catalysis by design - Synthesis of well-defined Ti and Zr surface complexes on ultra stable zeolite (Y) for refinery process**, *Dr. Manoja Samantaray, KAUST Catalysis Center*

10:10 ***Coffee Break***

POSTER SESSION — ***Moderator: Dr. Abdullah Aitani, KFUPM***

10:30 **10 poster presentations** (seven min each - *Program on Page 3)*

11:40 ***Prayer & Lunch Break***

SESSION FIVE CATALYTIC PROCESSES — ***Chairman: Dr. Ali Alzaid, Saudi Aramco***

12:20 **16.** **Enhanced light olefins production using modified MFI catalyst in n-pentane cracking,**
Dr. Ziyauddin Qureshi, KFUPM Center for Refining & Advanced Chemicals

12:40 **17.** **Novel route for on-purpose production of butadiene,**
Dr. Gazali Tanimu, KFUPM Center for Refining & Advanced Chemicals

13:00 **18.** **Controlled autoxidation of hydrocarbon to produce value-added chemicals,**
Dr. Muhammad N. Siddiquee, KFUPM Department of Chemical Engineering

13:20 **19.** **A study of the impact of hydrogen transfer reactions on production of olefins,**
Ms. Shatha A. Alabbad, Saudi Aramco R&DC

13:40 **20.** **Maximizing olefins from crude – UOP integrated olefins suite,**
Mr. Priyesh Jani, Honeywell UOP

14:00 ***Closing Remarks, Symposium Ends***

Each presentation includes 5-minutes Q&A

Technology in Petroleum Refining & Petrochemicals

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ONLINE POSTERS

Day Two: Tuesday, December 14, 2021 10:30-11:30

POSTER SESSION — ***Chairman: Dr.Aitani, KFUPM***

10:30	**1.**	**Rapid synthesis of Hf-Beta zeolite for upgrading bio-based furan derivatives,** *Dr. Ryoichi Otomo, Hokkaido University, Japan*
10:37	**2.**	**Cracking of botryococcene as chemical utilization of algae oil,** *Mr. Ryota Miyazaki, Tsukuba University, Japan*
10:44	**3.**	**Stable heterogenized Pd-NHC catalysts for carbonylation reactions,** *Waseem Mansour, Bassam El Ali, Mohammed Fettouhi, Wissam Iali, KFUPM Chemistry, IRC Refining & Advanced Chemicals*
10:51	**4.**	**Ultra-sensitive-fast NMR characterization of sulfur-heterocyclic compounds found in petroleum,** *Wissam Iali, Bassam El Ali, Mohammed Fettouhi, Waseem Mansour, KFUPM Chemistry, IRC Refining & Advanced Chemicals*
10:58	**5.**	**Highly efficient NHC-iridium(I) catalyst for green oxidative coupling reaction of thiols,** *Wissam Iali, Rami Suleiman, Bassam El Ali, Mohammed Fettouhi, KFUPM Chemistry; IRC Refining & Advanced Chemicals; IRC Advanced Materials*
11:05	**6.**	**Development of a shape-stabilized phase change material utilizing natural and industrial byproducts for thermal energy storage in buildings,** *Mr. Khaled Mohaisen, Dr. Md Hasan Zahir, KFUPM IRC in Renewable Energy & Power Systems*
11:12	**7.**	**Fuel design using genetic algorithm and artificial neural network,** *Mr. Faisal Albaqami, Dr. Abdul Gani Abdul Jameel, KFUPM Chemical Engineering*
11:19	**8.**	**Soot prediction of oxygenated fuels,** *Mr. Mohammed Qasem, Dr. Abdul Gani Abdul Jameel, KFUPM Chemical Engineering*
11:26	**9.**	**Hydrogen sulfide and carbon dioxide removal from natural gas by a robust porous organic polymer,** *Dr. Othman Charles Al-Hamouz, KFUPM Chemistry*
11:33	**10.**	**Synthesis of mesoporous Y-Zeolite using surfactant templating for cracking catalyst applications,** *Mr. Adeel Ahmad, Dr. Shakeel Ahmed, KFUPM Chemical Eng., IRC Refining & Advanced Chemicals*
11:40		*Poster Session Ends*

Each poster is 7 minutes