

# **30th Annual Saudi-Japan Symposium on Technology in Petroleum Refining and Petrochemicals 2021**

Online

13 – 14 December 2021

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## 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  
KFUPM IRC-RAC*

**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. Kelichi Tomishige  
Tohoku University*

**9:00 1. Keynote: Efficient CO<sub>2</sub> utilization through heterogeneous catalytic processes,** 5  
*Prof. Jorge Gascon, Director, KAUST Catalysis Center (KCC), KAUST Circular Carbon Initiative*

**9:30 2. Keynote: Future trends in petroleum industry** 6  
*Mr. Takashi Matsushita, President of JPI, Executive Vice President of Idemitsu Kosan Co., Ltd., Japan*

**SESSION TWO CARBON RECYCLING: LOW CARBON TECHNOLOGY** *Chairman: Dr. Khalid R. Alhooshani  
KFUPM Chemistry*

**10:00 3. Technology challenges and opportunities in carbon capture and utilization in process industry,** 7  
*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,** 8  
*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,** 12  
*Mr. Kenichiro Saito, ENEOS Research Institute Ltd., Japan*

**11:00 6. Carbon recycling technology perspectives for CO<sub>2</sub> emission reduction** 13  
*Prof. Takao Nakagaki, Waseda University, Japan*

**11:20 7. Recycle processes from waste plastics to chemical feedstock,** 14  
*Prof. Toshiaki Yoshioka, Tohoku University, Japan*

**11:40 Prayer & Lunch Break**

**SESSION THREE LOW CARBON TECHNOLOGY: CARBON DIOXIDE UTILIZATION** *Chairman: Dr. Aqil Jamal, Aramco R&DC*

**13:00 8. Visible-light driven redox system for CO<sub>2</sub> conversion into valuable organic materials** 15  
*Prof. Yutaka Amao, Osaka City University, Japan*

**13:20 9. CO<sub>2</sub> assisted oxidative dehydrogenation of hydrocarbons to produce olefins** 16  
*Dr. M. Mozahar Hossain, KFUPM Chemical Engineering*

**13:40 10. Bifunctional tandem catalysts for the one-pass synthesis of lower olefins via CO<sub>2</sub> hydrogenation,** 17  
*Dr. Shohei Tada, Ibaraki University, Japan*

**14:00 Day One Ends**

*Each presentation includes 5-minutes Q&A*

*Program as of Nov. 22, 2021*

## 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* 18
- 8:50 12. **Development of versatile spheroidal MgCl<sub>2</sub> polyolefin catalyst support and related innovation and spin-off challenges**  
*Dr. Muhammad Atiqullah, KFUPM Center for Refining & Advanced Chemicals* 19
- 9:10 13. **Advanced FCC catalyst design for LPG production**  
*Dr. Yusuke Takamiya, JGC C&C Ltd., Japan* 22
- 9:30 14. **Dearylation: a new process to enhance BTX yields in an aromatics recovery complex**  
*Dr. Robert Hodgkins, Saudi Aramco R&DC* 23
- 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* 24
- 10:10 *Coffee Break*

### POSTER SESSION

*Moderator: 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  
Aramco R&DC*

- 12:20 16. **Enhanced light olefins production using modified MFI catalyst in n-pentane cracking**  
*Dr. Ziyauddin Qureshi, KFUPM Center for Refining & Advanced Chemicals* 26
- 12:40 17. **Novel route for on-purpose production of butadiene**  
*Dr. Gazali Tanimu, KFUPM Center for Refining & Advanced Chemicals* 27
- 13:00 18. **Controlled autoxidation of hydrocarbon to produce value-added chemicals**  
*Dr. Muhammad N. Siddiquee, KFUPM Department of Chemical Engineering* 28
- 13:20 19. **A study of the impact of hydrogen transfer reactions on production of olefins**  
*Ms. Shatha A. Alabbad, Saudi Aramco R&DC* 31
- 13:40 20. **Maximizing olefins from crude – UOP integrated olefins suite**  
*Mr. Priyesh Jani, Honeywell UOP* 32
- 14:00 *Closing Remarks, Symposium Ends*

*Each presentation includes 5-minutes Q&A*

*Program as of Nov. 22, 2021*



## Technology in Petroleum Refining & Petrochemicals

Innovation towards Circular Carbon Economy

### ONLINE POSTERS

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

POSTER SESSION		Moderator: Dr. Nabeel S. Abo-Ghander KFUPM CHE
10:30	1. <b>Rapid synthesis of Hf-Beta zeolite for upgrading bio-based furan derivatives</b> <i>Dr. Ryoichi Otomo, Hokkaido University, Japan</i>	34
10:37	2. <b>Cracking of botryococcene as chemical utilization of algae oil</b> <i>Mr. Ryota Miyazaki, Tsukuba University, Japan</i>	35
10:44	3. <b>Stable heterogenized Pd-NHC catalysts for carbonylation reactions</b> <i>Waseem Mansour, Bassam El Ali, Mohammed Fettouhi, Wissam Iali, KFUPM Chemistry, IRC Refining &amp; Advanced Chemicals</i>	36
10:51	4. <b>Ultra-sensitive-fast NMR characterization of sulfur-heterocyclic compounds found in petroleum</b> <i>Wissam Iali, Bassam El Ali, Mohammed Fettouhi, Waseem Mansour, KFUPM Chemistry, IRC Refining &amp; Advanced Chemicals</i>	37
10:58	5. <b>Highly efficient NHC-iridium(I) catalyst for green oxidative coupling reaction of thiols</b> <i>Wissam Iali, Rami Suleiman, Bassam El Ali, Mohammed Fettouhi, KFUPM Chemistry; IRC Refining &amp; Advanced Chemicals; IRC Advanced Materials</i>	38
11:05	6. <b>Development of a shape-stabilized phase change material utilizing natural and industrial byproducts for thermal energy storage in buildings</b> <i>Mr. Khaled Mohaisen, Dr. Md Hasan Zahir, KFUPM IRC in Renewable Energy &amp; Power Systems</i>	39
11:12	7. <b>Fuel design using genetic algorithm and artificial neural network</b> <i>Mr. Faisal Albaqami, Dr. Abdul Gani Abdul Jameel, KFUPM Chemical Engineering</i>	40
11:19	8. <b>Soot prediction of oxygenated fuels</b> <i>Mr. Mohammed Qasem, Dr. Abdul Gani Abdul Jameel, KFUPM Chemical Engineering</i>	41
11:26	9. <b>Hydrogen sulfide and carbon dioxide removal from natural gas by a robust porous organic polymer</b> <i>Dr. Othman Charles Al-Hamouz, KFUPM Chemistry</i>	42
11:33	10. <b>Synthesis of mesoporous Y-zeolite using surfactant templating for cracking catalyst applications</b> <i>Mr. Adeel Ahmad, Dr. Shakeel Ahmed, KFUPM Chemical Eng., IRC Refining &amp; Advanced Chemicals</i>	43
11:40	<i>Poster Session Ends</i>	

Each poster is 7 minutes

Program as of Nov. 22, 2021