

The 31st Annual Saudi-Japan Symposium

The 31st Annual Saudi-Japan Symposium was held at KFUPM Dhahran Techno Valley on December 12 and 13, 2022, 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. Muhammad M. Al-Saggaf, President of KFUPM, Mr. Ahmed Al-Khowaiter, CTO of Saudi Aramco, Mr. Makoto Yokota, Managing Director Secretary General of JCCP and Dr. Atsushi Muramatsu, President of JPI and Professor of Tohoku University. In the Keynote Speech, Dr. Atsushi Muramatsu 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 Fuels & Petrochemicals" and there were 19 presentations (of which 5 were given by Japanese presenters sent to this symposium). The symposium and poster sessions cover plenty of fields. On petroleum refining, "Heavy Oil Upgrading and Hydrocracking", and on petrochemicals, "Manufacturing Technology for Olefins and Basic Chemicals" were presented. Also on new fields, there were "Recycling Technology for Municipal Waste and Waste Polymers", "Hydrogen Production Technology", and so on. Among the lecturers, one female researcher made a lecture. In addition, during poster sessions, two female researchers made presentations. Between presenters and audience, many active questions and answers were exchanged.

Prior to the symposium, the 30th Japan-Saudi Arabia Joint Symposium Commemorative Party, which had been postponed since last year, was held on December 11 at the Movenpick Al-Khobar Hotel, with about 100 participants from Saudi Arabia and Japanese companies in the region. Mr. Fumio Iwai, Japanese Ambassador Extraordinary and Plenipotentiary to Saudi Arabia, Dr. Atsushi Muramatsu, President of JPI, Mr. Ahmed Al-Khowaiter, CTO of Saudi Aramco, Mr. Eiji Hiraoka, Special Counselor of JCCP, and Dr. Ali Ahmad Al-Shaikhi, Vice President, Research and Innovation of KFUPM made opening greetings, expressing their gratitude for the symposium over the years and their expectations for its further development.

【Opening】



【Scene from the symposium】



【VIPs at The Commemorative Party】





Technology in Fuels & Petrochemicals

Innovative Catalyst Development

Venue: KFUPM Dhahran Techno Valley, Innovation Cluster Bldg., Auditorium 1-111
December 12-13, 2022

Day One: Monday, December 12, 2022

OPENING REMARKS SESSION

Chairman: Dr. Hassan Al-Asiri, KFUPM

8:30 Opening Remarks

- Dr. Muhammad M. Al-Saggaf, President, KFUPM
- Mr. Makoto Yokota, Managing Director Secretary General, JCCP
- Mr. Ahmad O. Al-Khowaiter, CTO, Saudi Aramco
- Dr. Atsushi Muramatsu, President, The Japan Petroleum Institute, JPI

SESSION ONE CARBON NEUTRALITY AND CIRCULAR ECONOMY

Chairman: Prof. Keiichi Tomishige, Tohoku University

- 9:00 1. Keynote: TBD, Dr. Gerard de Nazelle, Saudi Aramco R&DC
- 9:30 2. Keynote: JPI direction along carbon neutrality and introduction of our research trend for use of NanoTerasu, next generation synchrotron radiation facility, Dr. Atsushi Muramatsu, President of JPI, Associate Executive Vice President and Director of International Center for Synchrotron Radiation Innovation Smart, Japan

10:00 Coffee break

SESSION TWO INNOVATIVE CATALYSTS, UPGRADING PROCESSES

Chairman: Dr. Khalid Almajnoui, Saudi Aramco

- 10:20 3. Residue upgrading by hydroprocessing deasphalted oil
Dr. Koichi Matsushita, ENEOS Corporation, Japan
- 10:40 4. A high-throughput approach to study cation-exchanged zeolites
Dr. Hassan Aljama, Saudi Aramco R&DC
- 11:00 5. Catalytic manufacture of ethylene-1-hexene thermoplastic elastomer: Thermodynamic process development, Dr. Muhammed Atiqullah, Center Refining & Adv. Chemicals, KFUPM
- 11:20 6. Hierarchical nano-sized zeolite Beta development for crude oil hydrocracking catalysts
Dr. Lianhui Ding, Saudi Aramco R&DC

11:40 Prayer & Lunch Break

Each presentation includes 5-minutes Q&A Rev. Dec 4, 2022

Symposium supported by: 



Technology in Fuels & Petrochemicals

Innovative Catalyst Development

Day One: Monday, December 12, 2022

POSTER SESSION

*Chairman: Dr. Rajesh Theravalappil,
KFUPM*

- 13:00 P1. **Chemometrics study of sulfur reactivity in hydrodesulfurization process**
Ms. Hutoon Alhargan, Saudi Aramco R&DC
- 13:05 P2. **Development of hierarchical CoMo/Beta zeolite for BTX production**
Ms. Eman Albaher, Saudi Aramco R&DC
- 13:10 P3. **Development of new mesoporous materials for refining processes**
Dr. Sathiyamoorthy Murugesan, Center Refining & Adv. Chemicals, KFUPM
- 13:15 P4. **Thermal liquefaction of waste polystyrene plastic to liquid hydrocarbon fuel using ethanol as a solvent**, *Dr. Nabeel Ahmad, Center Refining & Adv. Chemicals, KFUPM*
- 13:20 P5. **Oxidative dehydrogenation of n-butane to produce petrochemical key building blocks (ethylene, propylene, and butadiene)**, *Mr. Ahmad Sabban, CHE, KFUPM*
- 13:25 P6. **Controlled autoxidation of heavy petroleum to produce carbon fiber precursors**
Mr. Lahmady S. Mohamed, CHE, KFUPM
- 13:30 P7. **Characterization of soot from atmospheric combustion of diesel/gasoline-oxygenate blends**, *Mr. Mohammed Qasem, CHE, KFUPM*
- 13:35 P8. **Turning municipal solid waste into fuel via integrated thermochemical and electrochemical processes**, *Mr. Achmad Putra, CHE, KFUPM*
- 13:40 P9. **CO₂-assisted oxidative dehydrogenation of propane to propylene over MoO₃ catalyst**
Mr. Suleiman Magaji, CHE, KFUPM
- 13:45 P10. **Effects of metal support interaction on dry reforming of methane over Ni/Ce-Al₂O₃ catalysts**, *Mr. Ariel Gursida, CHE, KFUPM*

13:50 *Poster Session Ends*

SESSION THREE ARTIFICIAL INTELLIGENCE, DIGITALIZATION

*Chairman: Dr. Jihad Badra,
Saudi Aramco*

- 14:00 7. **Digital chemistry guided development of novel ligands for selective ethylene tetramerization**, *Dr. Mohamed Elanany, Saudi Aramco R&DC*
- 14:20 8. **High-throughput screening and literature data driven machine learning (ML) assisting discovery of La₂O₃-based catalysts for low temperature oxidative coupling of methane**, *Associate Prof. Shun Nishimura, Japan Advanced Institute of Science and Technology, Japan*
- 14:40 9. **Optimal design of AI-based models integrated with Ensemble ML paradigms for crude to chemicals applications**, *Dr. Abdulkadir Tanimu, IRC Refining & Adv. Chemicals, KFUPM*

15:00 *Day One Ends*

Registration - Pls fill information via link: <https://forms.office.com/r/feV48k6DQw>



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Day Two: Tuesday, December 13, 2022

SESSION FOUR HYDROGEN PRODUCTION

*Chairman: Dr. Nabil Al Yassir
Honeywell UOP*

- 8:30 10. **Disruptive water electrolyzer system for cost-effective hydrogen production: Electrolyte engineering**, Prof. Kazuhiro Takanabe, Dept. Chemical System Engineering, University of Tokyo
- 8:50 11. **Development of low temperature steam reforming catalyst for hydrogen production for fuel cells**, Dr. Shakeel Ahmed, IRC Refining & Adv. Chemicals, KFUPM
- 9:10 12. **Thermo-catalytic production of hydrogen from H₂S: challenges and opportunities**
Dr. Zainab A. Aithan, Saudi Aramco R&DC
- 9:30 13. **Titania supported bimetallic catalyst for hydrogen production from methane**
Dr. Wasim Ullah Khan, IRC Refining & Adv. Chemicals, KFUPM
- 9:50 14. **Ammonia to hydrogen: cracking technology**, Dr. Stephen Paglieri, Saudi Aramco R&DC
- 10:10 Coffee Break**

SESSION FIVE CHEMICAL PRODUCTION

*Chairman: Prof. Takanabe, The
University of Tokyo*

- 10:30 15. **Redox dehydrogenation of propane utilizing lattice S²⁻ in metal sulfide catalyst**
Associate Prof. Ryo Watanabe, Shizuoka University, Japan
- 10:50 16. **An engineered bimetallic Fe-Cu-MOR zeolite catalyst for direct oxidation of methane to methanol** Dr. Ijaz Hussain, IRC Refining & Adv. Chemicals, KFUPM
- 11:10 17. **C-H and C-C of propane activation assisted by CO₂ for propylene and ethylene using bimetallic catalysts**, Dr. Emad N. Al-Shafei, Saudi Aramco R&DC
- 11:30 18. **CO₂ capture and conversion analysis technology development: TRL 1 -to- TRL 9**
Dr. Ali S. Al-Hunaidy, Saudi Aramco R&DC
- 11:50 Prayer & Lunch Break**

SESSION SIX WASTE AND CO₂ UTILIZATION

*Chairman: Prof. M. Mozahar Hossain,
KFUPM, CHE*

- 13:00 19. **Ceria-catalyzed synthesis of aliphatic polycarbonate diols from atmospheric flow carbon dioxide and diols without using dehydrating agents**, Prof. Keiichi Tomishige, Chairman of JPI Committee and Tohoku University, Japan
- 13:20 20. **Contaminants in plastic derived oil: A thorn in the flesh of plastic circularity?**
Dr. Aaron Akah, Saudi Aramco R&DC
- 13:40 21. **Conversion of rubber waste to liquid hydrocarbon fuel via thermal liquefaction process using solvent**, Dr. Nabeel Ahmad, IRC Refining & Advanced Chemicals, KFUPM
- 14:00 Closing Remarks, Symposium Ends**

Each presentation includes 5-minutes Q&A