

第31回 日本サウジアラビア合同シンポジウム（研究・技術）開催について

12月12～13日の両日、サウジアラビア KFUPM Dhahran Techno Valley において、Saudi Aramco 社、KFUPM、公益社団法人石油学会（JPI）、JCCP の4社共催で「第31回日本 サウジアラビア合同シンポジウム」を開催しました。初日のオープニングではKFUPM サガーフ総長、アラムコ アル・コウェイターCTO、JCCP 横田執行理事・事務局長、並びに JPI 村松会長兼東北大学教授が挨拶を、キーノートスピーチでも JPI 村松会長が講演を行い、140名を超える研究者や学生、地元邦人企業からの出席を得て盛大なシンポジウムとなりました。「石油精製および石油化学技術」（Technology in Fuels & Petrochemicals）をテーマに、石油精製関連では、重質油のアップグレード、水素化分解、石化関連では、オレフィン類や基礎化学品の製造技術、また都市ごみや廃樹脂のリサイクル技術や水素製造技術、化学研究へのAIの活用等に関して、ポスターセッションを含めて発表されました。女性による1講演も含む講演数は19件（内、日本から5件）でした。ポスターセッションでは、若手研究者による10件（内、女性による発表2件）の発表があり、活発な質疑応答等が交わされました。

なお、同シンポジウムに先立ち、12月11日に昨年度より延期となっていた第30回日本サウジアラビア合同シンポジウム記念パーティーをモーベンピック アルコバーホテルでサウジアラビアの関係者、現地日本企業関係者約100名の参加を得て、開催しました。冒頭、駐サウジアラビア特命全権大使 岩井文男様、JPI 村松会長、アラムコ アル・コウェイターCTO、JCCP 平岡特別参与、KFUPM アリ副総長より挨拶があり、長年にわたる当シンポジウムに対する謝意と更なる発展に対する期待が述べられました。

【オープニング】



【会場風景】



【記念パーティー】





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>



Technology in Fuels & Petrochemicals

Innovative Catalyst Development

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