

第30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13～14日の両日、サウジアラムコ社、KFUPM、公益社団法人石油学会（JPI）、JCCP の4社共催で「第30回日本 サウジアラビア合同シンポジウム」をオンライン開催しました。初日のオープニングでは KFUPM アル・サガーフ総長、サウジアラムコ アル・コウェイターCTO、JCCP 平岡常務理事、並びに JPI 松下会長が挨拶を、キーノートスピーチでは KAUST 触媒センター ホセ・ガスコン教授兼所長、並びに JPI 松下会長兼出光興産代表取締役副社長が講演を行い、150名を超える研究者や学生、企業、在サウジアラビア日本国大使館からのオンライン参加を得て盛大なシンポジウムとなりました。「石油精製&石油化学の技術-循環型炭素社会に向けた革新」(Technology in Petroleum Refining & Petrochemicals Innovation towards Circular Carbon Economy)を統一テーマに触媒・プロセス技術に加え、カーボンリサイクル・カーボンマネジメント関連技術、低炭素技術、二酸化炭素利用技術等、新たな分野の講演が多く実施され、講演数は18件（内、日本から7件）でした。またポスターセッションが開催され、若手研究者による10件（内、日本から2件）の発表があり、活発な質疑応答等が交わされました。

【オープニング】



座長: Dr. Hassan Alasiri KFUPM 石油精製&先進化学 研究センター長



Dr. Muhammad M. Al-Saggaf
KFUPM 学長



一般財団法人 JCCP 国際石油・ガス協力機関
平岡英治 常務理事



Mr. Ahmad O. Al-Khowaiter
サウジアラムコ CTO



出光興産株式会社代表取締役 副社長
松下敬石油学会長



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 CO₂ 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 CO₂ 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 CO₂ conversion into valuable organic materials**, Prof. Yutaka Amao, Osaka City University, Japan
- 13:20 9. **CO₂ 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 CO₂ hydrogenation**, Dr. Shohei Tada, Ibaraki University, Japan

14:00 Day One Ends

Each presentation includes 5-minutes Q&A



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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 MgCl₂ 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



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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