

The 23rd Saudi Arabia-Japan Joint Symposium

On December 2 and 3, 2013, JCCP and King Fahd University of Petroleum and Minerals (KFUPM) sponsored the 23rd Saudi Arabia-Japan Joint Symposium on oil refining and petrochemical catalyst technologies with the participation of the Japan Petroleum Institute (JPI). The symposium has been held annually at KFUPM since 1992.

On December 1, the day prior to the symposium, Mr. Morihiro Yoshida, Managing Director of JCCP, and members from JPI paid a call on H.E. Dr. Khaled S. Al-Sultan, Rector of KFUPM, to explain the significance of the following day's symposium. The Rector and Vice Rector noted that the Saudi Arabia-Japan Joint Symposium is a unique undertaking among the various activities implemented by KFUPM, and articulated their expectations that its 23-year history would see further development in the future.

On December 2, the symposium opened with a speech by Dr. Al-Sultan, who stated that KFUPM intends to focus its efforts on business areas in the future, and meet particular needs for human resources to supply manpower for Saudi Aramco's three new refineries and petrochemical complex currently slated for construction. He closed his speech by expressing his best wishes for the occasion of the 60th anniversary of diplomatic relations between Saudi Arabia and Japan to further strengthen the relationship between the two countries.

Following Dr. Al-Sultan, Mr. Yoshida first congratulated KFUPM on the 50th anniversary of its founding and the achievements it has made through those



Dr. Atsushi Satsuma, head of the JPI delegation, giving a speech

years. He then referred to the symposium's contribution to the advancement of studies in the oil refining sector, and articulated JCCP's continuing commitment to contributing to technical exchanges between Saudi Arabia and Japan.

Dr. Atsushi Satsuma, head of the JPI delegation (and professor at Nagoya University), mentioned how Prime Minister Shinzo Abe's recent Middle East tour has placed greater emphasis on promoting academic and personnel exchanges with the Middle East countries, and expressed his wish to see further development of the Saudi Arabia-Japan Joint Symposium as a pioneering manifestation of that policy.

Following the opening ceremony, the two-day symposium featured 18 presentations in six sessions on topics such as gasoline reforming, desulfurization/FCC,



Courtesy call on H.E. Dr. Khaled S. Al-Sultan, Rector of KFUPM



Mr. Morihiro Yoshida, Managing Director of JCCP, shaking hands with H.E. Dr. Khaled S. Al-Sultan

olefin catalysts, dehydrogenation/recycling, alkylation/characterization, and mechanisms/polymerization. Of the presentations, nine were on the latest R&D achievements by Japanese researchers.

The presentations covered themes related to the latest oil refining and petrochemical production technologies and trends related to catalysts. The Japanese side gave nine presentations, including one by Mr. Shigeyuki Nagano, Manager of the Catalysts Research Center at JGC Catalysts and Chemicals Ltd. (the company is engaged in a joint project with KFUPM under the JCCP technical cooperation scheme), and another by Dr. Sachio Asaoka, lecturer at Kogakuin University who previously provided research assistance at KFUPM under the JCCP Long-term Researcher Dispatch Program, in addition to those by members of the JPI delegation. On the Saudi Arabian side, KFUPM gave three presentations, and Saudi Aramco, KACST and KAUST gave one presentation each. There were also three presentations by foreign researchers, namely Dr. Arthur Garforth from the University of Manchester in England, Dr. Luis Oro from University of Zaragoza in Spain, and Dr. J. Čejka from the Institute of Physical Chemistry in the Czech Republic.

The presentations by KFUPM included one by Dr. Oki Muraza, who engaged in research at Hokkaido University in FY2012, and a report by Dr. Muhammad Atiqullah, who studied at Japan Advanced Institute of



Dr. B. Rabindran Jermy from KFUPM giving a presentation



Article of the symposium that appeared in Al-Yaum on Dec. 3

Science and Technology in FY2013, both under the JCCP Researcher Invitation Program.

Articles on the symposium appeared in three local Arabic newspapers (*Al Yaum*, *Al Madina* and *Okaz*), with the one in *Al Yaum* taking up an entire page, accompanied by a number of photos. Additionally, an article that featured a summary of the first day's speeches by the guests of honor also appeared in the English-language Saudi Gazette.

The presentations and discussions fostered a keen awareness that the symposium provided an ideal opportunity for exchanging and providing useful information to both Saudi Arabian and Japanese researchers, and that it plays a significant role in strengthening technical cooperation between the two countries.

<by Sadao Wada, Technical Cooperation Dept.>

■ Session Themes

<Day One>

Session 1: Gasoline Upgrade

- (1) Dr. Yuji Saka, Cosmo Oil Co., Japan
Techniques for octane number enhancement in FCC gasoline and catalytic activity improvement
- (2) Dr. Sachio Asaoka, JCCP/KFUPM
Nanoporous hybrid catalysts: Pd/nanosized Al₂O₃/H-Beta zeolite for isomerization of naphtha

Session 2: Desulfurization/FCC

- (3) Dr. Yoshiyuki Nagayasu, JX Nippon Oil & Energy Corporation, Japan
Development of the simulator to predict the life of desulfurization agents in fuel cells
- (4) Dr. Syed A. Ali, KFUPM/CRP
Development of deep hydrodesulfurization catalysts with improved performance
- (5) Mr. Shigeyuki Nagano, JGC Catalysts and Chemicals Ltd., Japan
The recent catalyst technology for oil refining process

Session 3: Catalytic Olefins

- (6) Dr. Teruoki Tago, Hokkaido University, Japan
Synthesis of nano-crystalline zeolite crystals and their catalytic activity
- (7) Dr. Oki Muraza, KFUPM/Chemical Engineering
Catalytic cracking of n-hexane over modified H-ZSM-22 zeolites
- (8) Dr. Atsushi Muramatsu, Tohoku University, Japan
Regeneration and promotion of catalytic activity of zeolites for DME conversion to olefin

<Day Two>

Session 4: Dehydrogenation/Recycling

- (9) Dr. Atsushi Satsuma, Nagoya University, Japan
Catalysis of metal nano-cluster on NO_x reduction, green chemical reaction, and biomass conversion
- (10) Dr. B. Rabindran Jermy, KFUPM/CRP
Tuning dehydrogenation activity by Bi addition over Ni/ γ -alumina catalyst for butadiene production from n-butane
- (11) Dr. Arthur Garforth, University of Manchester, UK
Enhanced Feedstock Recycling — NovaCrack™

Session 5: Alkylation/Characterization

- (12) Dr. Jiri Čejka, J. Heyrovsky Institute Physical Chemistry, Czech Republic
Controlling of textural properties of zeolites for catalytic purposes
- (13) Mr. Mohammed Al-Amer, Saudi Aramco
Development of a novel trans-alkylation catalyst to enhance xylene production
- (14) Dr. Nobuaki Kambe, Osaka University, Japan
Transition metal catalyzed C-C bond formation on sp³-carbons
- (15) Dr. Joji Sonoda, BEL Japan Inc., Japan
The development of fully-automatic IRMS-TPD analyzer

Session 6: Mechanism/Polymerization

- (16) Dr. Luis Oro, Zaragoza University, Spain
Iridium homogeneous catalysts following outer-sphere mechanisms
- (17) Dr. Emmanuel Callens, KAUST
Novel supported tantalum species in ethylene oligomerization and polymerization
- (18) Dr. Muhammad Atiqullah, KFUPM/CRP
Development of industrial polyethylene catalysts: aspects beyond synthesis, characterization, and evaluation