

PROMINENT SOCIAL OUTREACH EFFORTS

SAICSC-ACS 2012 ANNUAL REPORT

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SAICSC-ACS 2012

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CHAIRMAN MESSAGE

Dear valued SASICSC-ACS members,

On behalf of the board of directors, I would like to welcome you to the 2012 SAICSC-ACS annual report, which has been an exciting year. Allow me first to start by thanking you for your active participation in this year's activities. Allow me also to extend my deep appreciation to our honorary members and sponsors who were true partners in fulfilling our ultimate desires and objectives of catalyzing the development of our scientific community within the Kingdom of Saudi Arabia.

This year the society continued its successful journey and has expanded its envelope of activities to signify its presence and magnify its fingerprint. This year the society continued to attract renowned speakers for its dinner meeting. These speakers represented a variety of disciplines and included research institutions, universities, as well as industry leaders.

This year our outreach efforts extended to focus on the power of the future, the students. During 2012, the SAICSC-ACS organized a number of events to create

vibrant interaction platforms to nurture the development of our young talents within our community.

These activities included:

- School visits to Saudi Aramco Research & Development Center
- Student Cool Night Scientific Experimental Contest
- Fourth Technology Festival event at SciTech
- Training of the Saudi National Team who participated in the Chemistry Olympiad, USA.

2012 has also witnessed the society's first attempt to translate scientific materials and issued the first edition of "Discover Chemistry Secrets" book series. This book is intended to provide young talents with delightful scientific stories to discover the chemistry in their daily life.

These efforts are important constituents that translate our mission to promote chemistry, instill a learning culture and to avail and disseminate scientific knowledge to the community.

I would also like to thank all society members for their valuable support and active participation and I want to emphasize that without such support and participation we could not succeed in our endeavor to become one of the most vibrant chemical societies in Saudi Arabia.

Once again thank you all and I wish you and your families all the best.

2012 BOD



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Chairman



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Past Chairman



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Dr. Basheer Chanbasha
Newsletter Editor

DINNER MEETING HIGHLIGHTS

JANUARY 2012

THE ROLE OF FUEL IN SHAPING THE AUTOMOTIVE INDUSTRY IN THE FUTURE



Dr. Thomas W. Ryan III
T Ryan Consultants, LLC

the Saudi Arabian International Chemical Sciences Chapter of the American Chemical Society (SAICSC- ACS), held its 2012 first monthly technical dinner meeting on Jan. 30 in al-Khobar.

Dr. Thomas W. Ryan III delivered a fantastic lecture on total fuel life cycle energy balance.

Dr. Thomas W. Ryan III, president of T. Ryan Consultants, LLC, who began his career at Southwest Research Institute in 1979 after serving as an assistant professor of mechanical engineering at Penn State University, delivered the technical presentation of the evening. In his presentation

Theme: **“The Role of Fuel in Shaping the Automotive Industry in the Future,”** Ryan discussed current heavy duty emission legislation and technology in the European Economic Community (EEC), recent combustion research, diesel fuel properties and their effect on emissions, Homogeneous Charge Compression Ignition (HCCI) status and high efficiency gasoline.

Ryan emphasized the need to consider the total fuel life cycle energy balance and cost and the need to appeal to the economic desire of the customer — total life cycle cost. He further stressed that when examining new fuel formulations, the total cost of ownership should always be considered.



DINNER MEETING HIGHLIGHTS

FEBRUARY 2012

FULLY DEVELOPED TURBULENT MHD PIPE FLOW WITH HEAT TRANSFER



Dr. Khalid Al-Ammar

mechanical engineering department,
king saud university

the Saudi Arabian International Chemical Sciences Chapter of the American Chemical Society SAICSC-ACS) organized its second monthly technical dinner meeting on Feb. 27, 2012 at Le Meridian Hotel.

Dr. Khalid N. Alammam, an associate professor of Mechanical Engineering from King Saud University in Riyadh, delivered the technical presentation of the evening.

Alammam's presentation on **"Fully Developed Turbulent MHD Pipe Flow with Heat Transfer"** focused on a project that was a collaborative effort between the Saudi Aramco Research and Development Center and King Saud University.

The project studied the effects of magnetohydrodynamics (MHD) on fluid and heat flow, and characteristics in pipes. MHD technology can be used in various industrial applications; it provides heat transfer enhancement, drag reduction in fluid flows, as well as electric power generation. In his presentation, Alammam mentioned other applications where MHD principles can be deployed, including blood flow, micro pumps, porous media, chemical reactions and mixing, and material production. He also described how the

magnetic field effect applied to a conductive fluid, which results in what is known as the Lorentz force, alters both hydrodynamic- and thermal-boundary layers. This can be utilized according to a specific application requirement.

In his own perspective, Alammam emphasized that work conducted over the past two years was successful not only for the technological advancement it provided, but especially for bringing researchers from both Saudi Aramco and King Saud University to work closely together.



DINNER MEETING HIGHLIGHTS

MARCH 2012



Dr. Avelino Corma Canos
professor at the instituto de tecnologia
(csic-polytechnical university of valencia)

the Saudi Arabian International Chemical Sciences Chapter of the American Chemical Society (SAICSC-ACS) organized its second monthly technical dinner meeting on Monday March 20th, 2012 at Le Meridien Hotel. Dr. Avelino Corma Canos from Valencia delivered his wonderful lecture on Fundamental Research in Catalysis to Industrial Application. Dr. Avelino Corma Canos, a Professor at the Instituto de Tecnología Química (CSIC-Polytechnic University of Valencia), delivered the technical presentation of the evening. Dr. Corma presentation on **“From Fundamental Research in Catalysis to Industrial Application”** talked about the main properties of Zeolites: catalytic implications and structure. Zeolites are microporous, aluminosilicate minerals commonly used as commercial adsorbents. Dr. Corma also presented a Zeolite pore model for catalytic cracking. In his presentation Dr. Corma emphasized it is not possible during catalytic cracking of gas oil to produce high yields of Light Cycle Oil (LCO) Diesel and propylene at the same time with a single catalyst.

Obtaining Propylene Oxide from Propylene via Cumene-Hydroperoxide was successfully developed by Dr. Corma. The first Sumitomo plant was commissioned in April 2003, and the second commercial plant started

at PetroRabigh, Saudi Arabia in 2010. Dr. Corma also presented other catalysts he developed over the years, and was commercially deployed in Feb 2008. The technology he developed is operating successfully in seven plants worldwide. The desulphurization performance, as predicted, produced additional ultrapurification benefits.

FROM FUNDAMENTAL RESEARCH IN CATALYSIS TO INDUSTRIAL APPLICATION



APRIL 2012 TECHNICAL DINNER MEETING



Dr. Ernesto Occhiello

Executive Vice-President, Technology and Innovation, SABIC

The Saudi Arabian International Chemical Sciences Chapter of the American Chemical Society (SAICSC-ACS), held its 2012 monthly technical dinner meeting on April 2012 in Al-Khobar. Dr. Ernesto Occhiello delivered a wonderful lecture **ON THE IMPACT OF CHEMICAL ENGINEERS AND CHEMIST.**

Prior to joining SABIC, Ernesto was a member of the Innovation and Growth Team for Dow Chemical Company in Switzerland where he contributed to the medium and long-term strategy of the company with other Executive leaders. He was responsible for R&D in Europe, Middle East, Africa and India. At Dow, Ernesto held many director roles in R&D with leadership roles in technology development for specialty and performance products, manufacturing leadership and acquisition integration.

Ernesto holds a Laurea (until the 1980s, the highest academic degree awarded by Italian universities) in Chemistry with Honors from the University of Turin where he was also contract professor of Chemistry of Materials. He has co-authored two books, more than 100 papers, communications to congresses and 45 patents. He has more than 120 citations in SciFinder and an h-index of 19.

He has a strong history of leveraging innovation to achieve commercial success and fueling business growth in propylene oxide manufacturing and formulations for wind energy.

ON THE IMPACT OF
CHEMICAL ENGINEERS
AND CHEMISTS

MAY 2012 TECHNICAL DINNER MEETING

Dr. Halim Hamid Redhwi, Ph.D.
vice president (A) dhahran Techno-valley
company (DTVC)
(KFUPM)

The Saudi Arabian International Chemical Sciences Chapter of the American Chemical Society SAICSC-ACS, held its May 2012 monthly technical dinner meeting in Al-Khobar. Dr. Redhwi delivered a presentation on **DHARAN TECHNO-VALLEY AT KFUPM: DEVELOPMENT AND COMMERCIALIZATION.**

Dr. Redhwi is the Vice President of the Dharan Techno-Valley Company and a Professor in the Chemical Engineering Department, KFUPM. His main contribution in the last 10 years is in establishing an entrepreneurial culture in the University where he is involved in Dharan Techno-Valley (DTV) development. This has led to the establishment of many R&T Centers, including Schlumberger, Yokogawa, Honeywell/UOP, Baker Hughes, Sipchem, Halliburton, GE and others.

He was involved in the research programs that became the areas of excellence for KFUPM in the areas of Heavy Oil Upgrading, Novel Petroleum refining Process (HSFCC) and Polymer Degradation.

The projects resulting from these programs generated multi-million US Dollars of funding for KFUPM from industrial clients, such as Saudi Aramco, SABIC, Nippon Oil, Japan, Ciba Specialty Chemicals, Switzerland etc. Dr. Redhwi has patents and published more than 120 papers in refereed journals, conference, proceedings, chapters in books and other trade journals. He has also published book with a USA publisher.



DHARAN TECHNO-VALLEY
AT KFUPM
DEVELOPMENT AND
COMMERCIALIZATION

SAUDI CHEMICALS GLOBAL COMPETITIVENESS BEYOND ADVANTAGED FEEDSTOCK'S & ENERGY

PANEL DISCUSSION

Saudi Chemicals Global Competitiveness beyond
Advantaged Feedstock's & Energy

The Saudi chapter of the American Chemical Society, and the Saudi Arabian Section of the American Institute of Chemical Engineers organized a panel discussion on **“SAUDI CHEMICALS GLOBAL COMPETITIVENESS BEYOND ADVANTAGED FEEDSTOCK AND ENERGY”** which was held at the Meridian Hotel on December 04, 2012. The event was attended by about 300 members representing academia and different industrial sectors such as Saudi Aramco, SABIC, KFUPM and KAUST. The event was moderated by Dr. Mohamed Ramady, KFUPM Visiting Associate Professor, Finance and Economics Department. The panel consisted of an open discussion with no prepared presentations. The format allowed for a lively interaction with eminent chemical industry leaders consisting of Mr. Fayez Al Sharef, Director of Chemicals, Saudi Aramco, Mr. Mazyed Al Khaldi, President IBN-SINA, Mr. Mohamed Al Laabon, Chairman of Rowad International -part of the TASNEE Group, and Mr. Abdulrahman Al

Saif, President of Projects and Services at SPICHEM.

The discussion covered many topics and issues facing the chemical industry, including analyzing its contribution to the national GDP, local workforce employment & development, the role of R&D and academia interaction, the issue of subsidized feedstock as a long term viable option, the threat from new geo-political realities such as shale oil and gas from hitherto energy deficit nations, and whether the drive to concentrate on emerging Asian markets, China in particular, is a long term sustainable move. The panelists agreed that while the outlook was still positive for the sector, yet efficiency, and downstream niche product specialization was important, as well as creating viable Saudi SME support hubs for the sector to generate high value jobs. The panel responded to many questions on renewables, especially solar, the use of naphtha and other feedstocks, as well as economic factors such as pricing margins, financial crisis loan impact, and rising project costs affecting the industry in the long term.



PANEL FROM LEFT TO RIGHT

Mazyad S. Al-Khaldi
Fayez Al-Sharef
Abdulrahman Al-Saif
Saleh Al-Nazha
Dr. Mohammed Al-Ramady

SAICSC-ACS

THE SOCIETY MEMBERS VISIT TO HONG-KONG & MALAYSIA

As part of the society's social activities for 2012 programs, a wonderful out-of-kingdom trip was arranged for members to Hong-Kong and Malaysia. More than 75 Society's members and their families joined the trip from June 28 to July 8, 2012. Large number of members' expressed interest to join as the trip's cost was subsidized, the Society sponsored part of the trip.

The four days in Hong Kong were full of activities where families visited the Disney Land, The Ocean Park, The Peak, wax museum and other attractions. The fireworks for Hong- Kong celebrations was admirable and the lifestyle will be remembered.

In Malaysia, the families enjoyed the shopping, museums, parks and safaris. The experience in Sunway Lagoon Water Park was exceptional with great excitements.

The six-day trip to Malaysia is the sponsored part of the trip where members and their families embarked the tourism activities and toured the city in single or group base. The trip was extremely successful due to good organization and well planning.



COOL CHEMISTRY *Night*



On the occasion of the 2012 Chemistry teaching reform initiative led by Dr Alhooshani at KFUPM, “**COOL CHEMISTRY**” night show competition was organized. The King Fahad University, Chemistry Department wants to showcase the fun side of science with this two-hour show that features, crazy foam experiments, spontaneous combustion, things that glow in the dark, making ice cream with liquid N₂ and more. The event was conducted by students. Students worked within their own team to compete for the best attractive experiment without interfering from the instructor. Almost 18 teams participate for the completion. Each team had 4-5 students. There were more than 120 students/faculties attended the event. It was sponsored by the Saudi Arabian International Chemical Sciences Chapter of American Chemical Society (SAICSC-ACS). There were many prizes and 3 winning teams.



SEPTEMBER 2012 TECHNICAL DINNER MEETING

TASNEE ROLE IN INDUSTRY INTEGRATION



Mr. Sameer A. Al-Humaidan
vice president of technical affairs
tasnee petrochemical complex

TASNEE is ranked among the most successful petrochemical companies in the kingdom of Saudi Arabia. It is the second largest producer of petrochemical products in Saudi Arabia. It exports 70% of its products worldwide and the other 30% is to fulfill the demand of local market and GCC. TASNEE markets its products through four major sectors:

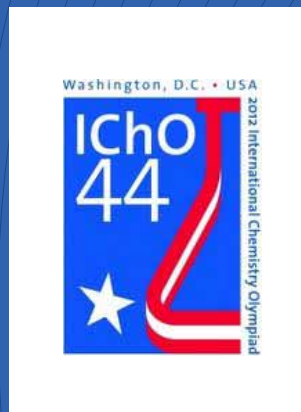
- . petrochemical Sector
- . chemical Sector
- . Metals Sector
- . Diversified Sector

SAICSC-ACS SPONSORS

School Visits to
Saudi Aramco
Research &
Development
Center



During the month of April the SAICSC-ACS organized school “**VISITS TO SAUDI ARAMCO R&D.**” On the 23th of April a group of young male talents conducted the visit, followed by another group of females who conducted the visit on the 29th of April. Both groups have had an exciting time where students got amazed by the chemistry experiments that were prepared for them.



SAICSC-ACS SPONSORS

INTERNATIONAL CHEMISTRY OLYMPIAD TRAINING

The International Chemistry Olympiad (IChO) is an annual academic competition for high school students. Every year more than 120 countries participate in this event to demonstrate their academic performance. This event was started in 1968; however, the Kingdom of Saudi Arabia joined at 2006.

This program is locally managed by Mawhiba and supported by King Saud University (KSU).

For this year national level Olympiad competition, search for the talented chemistry students started at the beginning of the year (throughout the Kingdom) and students were actively participated with the help of Ministry of Education. Top 20 students were selected and subjected to intensive training which was conducted at KSU. Finally, the top 5 students were selected for a second round of training program and participated at Regional level chemistry Olympiad completion.

For this year's IChO (www.icho2012.org), these 5 students spent further training at KSU, KAUST and KFUPM to enhance their theory and practical knowledge. Final phase of training both theory/practical preparations were conducted at KFUPM with the support of KFUPM faculties and SAICSC-ACS. This training was successfully completed, and students represented the Kingdom at IChO 44, Washington, D.C., U.S.A.





DISCOVER THE SECRETS OF CHEMISTRY

THE FORTH NATIONAL FESTIVAL OF SCIENCE AND TECHNOLOGY



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مركز سلطان بن عبدالعزيز للعلوم والتقنية
SULTAN BIN ABDULAZIZ SCIENCE & TECHNOLOGY CENTER

The society has also taken a leading role in participating in the "4TH TECHNOLOGY FESTIVAL EVENT" organized by SciTech where visitors got exposed to an array of different activities pertaining to energy research and technology development. This event included hands on experimental activities to explore how chemistry is applied in the industry.

2012 has also witnessed the society's first attempt to translate scientific materials and issued the first edition of "DISCOVER CHEMISTRY SECRETS" book series. This book is intended to provide young talents with delightful scientific stories to discover the chemistry in their daily life. These efforts are important constituents that translate our mission to promote chemistry, instill a learning culture and to avail and disseminate scientific knowledge to the community.

