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REPORT FROM THE IVth INTERNATIONAL CONFERENCE ON ADVANCES IN PETROLEUM AND GAS INDUSTRY AND PETROCHEMISTRY, LVIV, 11–14 SEPTEMBER 2007

The Third Conference took place in 2004, and the subsequent one was eagerly awaited. Below is a brief description of the Fourth Conference, a list of some of the papers presented, names of Young Investigator Prize winners, and also mention of some excursions for the participants. Before reporting on the events, in behalf of the participants I would like to warmly thank **Michael Bratychak** and **Olena Shyshchak**, respectively the Chair and the Secretary of the Organizing Committee, for a great conference.

The venue of the Conference was Lviv Polytechnic National University, founded in 1844. The conference opening took place in the magnificent Grand Hall of the University; by request of King Franz Josef of Galicia, the Grand Hall was decorated in 1880 by the painter Jan Matejko. 11 large ceiling paintings by Matejko depict the main themes of Technology in the service of humanity – including Energy and Communications.

At the beginning of the Conference there was a minute of silence in memory of Rector **Yury Rudavskyy**, an accomplished mathematician who also made outstanding contributions to the growth of his University.

As a part of the opening ceremony, the Academy of Petroleum and Natural Gas in Kyiv inducted two new Members: **Elizabete F. Lucas**, Director of the Eloisa Mano Institute of Macromolecules at the Federal University of Rio de Janeiro; and **Victor M. Castaco**, Director of the Center for Applied Physics and Advanced Technology of the National Autonomous University of Mexico in Queretaro. Along with flowers, diplomas were handed to the new members by the Head of Petroleum Division **Yury Ishchuk** and by General Secretary of the Academy **Evhen Kobylansky**.

Speakers and participants represented Austria, Belgium, Brazil, Bulgaria, Czech Republic, France, Germany, Hungary, India, Mexico, Poland, Russia, Ukraine and the United States. A total of nearly 160 papers (53 oral and 104 posters) were presented. As at most conferences, it is impossible to make a selection from the presentations from universities, research institutes and industry without overlooking important contributions. A few representative contributions (but see also Prizes below) were:

* **Michael Bratychak**, Lviv Polytechnic National University: A development strategy for the petroleum and gas processing industry in Ukraine

* **Zoryan Pikh**, Lviv Polytechnic National University: Current status and future perspectives of organic synthesis in industry

* **Stanislav Voronov**, Lviv Polytechnic National University: Polymer-based composites obtained with application of oligoperoxides

* **Kazymyr Patrylak**, Institute of Bioorganic and Petroleum Chemistry of the National Academy of Sciences of Ukraine, Kyiv: Modification of hydrocarbons on zeolites

* **Petro Topilnitskii**, Lviv Polytechnic National University: Applications of motor and other oils from petroleum in the world and in Ukraine

* **Witold Warowny**, Warsaw University of Technology at Plock: Equations of state in modeling of the natural gas behavior

* **Marian Kaminski, Rafal Falkowski and Juliusz Bianga**, Gdansk University of Technology: Desulfurization of diesel fuels by selective adsorption

* **Oleksandr Zaichenko, Natalia Mitina, Oleh Shevchuk et al.**, Lvivska Politechnika National University: Novel polymeric and hybrid nanoscale composites

* **Elizabete F. Lucas**, Federal University of Rio de Janeiro: Polymeric additives for oil production

* **Oleksandr Pokutza, J.L. le Bras and J. Muzart**, Institute of Physical Chemistry of the National Academy of Sciences of Ukraine, Lviv, and Université de Reims Champagne – Ardenne: Benign homogeneous catalytic oxygenation of cyclohexane promoted with glyoxal

* **Victor M. Castaco**, Center for Applied Physics and Advanced Technology of the National Autonomous University of Mexico, Queretaro: A nanotechnology approach to armor materials

* **Volodymyr Donchak, Ruslan Yuryev, Hrystyna Harhay and Stanislav Voronov**, Lviv Polytechnic National University: Unsaturated dextrans for biodegradable hydrogels

* **Lucjan Chmielarz et al.**, Jagiellonian University, Cracow: Selective catalytic oxidation of NO with ammonia over modified cationic layer clays

* **Olena Shyshchak, Michael Bratychak, Taras Chervinskiy and Natalia Nosova**, Lviv Polytechnic National University: Structurization of oligomeric mixtures in the presence of peroxy derivatives of ED-20 epoxy resin

* **Piotr Kustrowski, Lucjan Chmielarz, R. Dziembaj, P. Cool and E.F. Vansant**, Jagiellonian University, Cracow, and University of Antwerp: Oxydative dehydrogenation of ethylbenzene with nitrous oxide

* **Volodymyr Gumenetskiy et al.**, Lviv Polytechnic National University: Kinetics of dehydrogenation and amination of C₄ olefins

The Conference has awarded Young Investigator Prizes to graduate students and recent doctoral degree recipients. The Prize Committee was chaired by **Elizabete F. Lucas**. Several candidates made their presentations in English for the first time in their lives; one of the students made her presentation in French – a language fortunately known to the Committee members. Given an unusually high quality of results and their importance, it was decided to award four Prizes in the Petrochemistry and Polymer Science Division:

The First Prize: **Haley E. Hagg Lobland**, University of North Texas, Denton, for her three presentations, one oral and two posters:

* Scratch resistance and morphology of thermoplastics (jointly with Witold Brostow, Ly Hoang and Ratul Pujari)

* Rheology and viscoelasticity of engineering polymers (jointly with Piotr Blaszcak and Witold Brostow)

* Modeling the degradation of drag reducers (jointly with Witold Brostow and Ram P. Singh, the latter at the University of Lucknow)

The Second Prize: **Hrystyna Hishchak**, Lvivska Politechnika National University:

* Synthesis of (meth)acrylate copolymers with poly(vinyl pyrrolidone) in the presence of dispersed metal powder particles (jointly with Oleg Suberlak and Oleksander Hrytsenko)

The Third Prize: **Irina Koval**, Lvivska Politechnika National University:

* Purification of industrial wastewaters by acoustic cavitation (jointly with Volodymyr Starchevskiy and Lilia Shevchuk)

The Fourth Prize: **Irina Miskova**, Lvivska Politechnika National University:

* Synthesis of peroxide modifiers of polymer surfaces (jointly with Olga Budishevska and Stanislav Voronov)

Two other constituents of the Conference, namely the Oil and Gas Processing Division and the Coal Chemistry Division, have also awarded Young Investigator Prizes. The *ex aequo* winners are:

Vita Yudina, MASMA Ukrainian Institute for Oil Refining Industry, Kyiv, for her three presentations, one oral and two posters:

* Zinc + barium mixed dithiophosphate additive to motor oils (with Viktor Suhoverhov, Ludmila Vavrovska and Ivan Vasilkevich)

* Motor oils for high load and high speed diesel motors (with Viktor Suhoverhov and Zoya Yavorska)

* Determination of evaporation loss of lubricating oils by the Noack method (with Serhiy Kondratyev, Irina Budzinska and Svitlana Shamkina)

Aneta Lorek, Warsaw University of Technology at Plock:

* Sedimentation of asphaltenes in post-distillation residues (jointly with Maciej Paczuski)

Larisa Chernyak, National Aviation University, Kyiv:

* A system for controlling fuel quality (jointly with S. Boichenko)

Oleg Bulyga, Donetsk National Technical University:

* Improvement of the coke formation process in the presence of a polymer (jointly with R. Makovskiy, Ludmila Butuzova and V. Shevkoplas)

Volodymyr Safin, Donetsk National Technical University and Institute of Organic Chemistry of the Bulgarian Academy of Sciences, Sofia:

* Determination of composition of tars from coal pyrolysis (with Ludmila Butuzova, L. Gonsalvesh and M. Stefanova)

Yevhen Zubcov, Severodonetsk Technological Institute:

* Development of a high temperature process for gasification of solid fuels (with M. Glikin and I. Glikina)

A very nice addition to the conference program was sightseeing in Lviv, a charming city with 750 years of history, and with large contributions to the present shape of the city by Armenians, Austrians, Germans, Greeks, Hungarians, Jews, Lithuanians and Poles – in addition to Ukrainians. We have seen the Historic Museum in the Old Market Place, the Arsenal, the Armenian Catholic Cathedral, the Ukrainian Catholic St. George Cathedral, the High Castle, the Ivan Franko University and the Opera. There is a miniature copy of the New York Statue of Liberty on the roof of a house in Freedom Avenue.

There was also an opportunity for some of us to see the Halychyna Oil Refinery in Drohobych, 140 years old and thus the oldest in Europe. The Director General of the Refinery **Oleksandr Lazorko** told us about current and future stages of growth. The Halychyna Refinery undergoes a large expansion – in compliance with regulations of the European Union. It is not far from Drohobych to the mineral waters spa in Truskavets and also to Sambir. I took several photos of ‘Himnazia’ in Sambir, inside and outside; my Father was born in Sambir and graduated from that Himnazia – which still is the only high school in town.

Saturday September 15 some of us went to Univ, Zolochiv, Pidhirtsy and Olesko. In Univ there is an Ukrainian Catholic monastery where during World War II Archbishop Andrei Count Szeptyckiyy harbored Jewish-Polish-Ukrainian children saving them from the Holocaust. In 2005 a plaque honoring the Archbishop and his brother Klemens was put there by Adam Daniel Rotfeld as the Minister of Foreign Affairs of Poland — himself one of those children whose lives were saved inside the monastery walls. Zolochiv is the birthplace of the Nobel laureate and now Cornell University Professor Roald Hoffmann - saved in Univ from the Holocaust by an Ukrainian schoolteacher Mykola Diuk. We visited the Zolochiv castle including its Oriental Art collection, and later saw from outside the Pidhirtsy castle. An early dinner in the Olesko castle brought us back several centuries of history. King John III Sobieski who later stopped the Turkish invasion of Europe in the battle of Vienna was born in the Olesko castle.

The Fifth Conference will be held in Lviv in 2009. We are already looking forward to it.