

## **International Environmental Chemistry K12 Educational Outreach Collaborations between ACS ENVR and the Serbian Chemistry Society**

The Environmental Chemistry Division of the American Chemical Society (ENVR-ACS) and the Serbian Chemistry Society (SCS) propose to develop a collaborative environmental chemistry program for American and Serbian middle and high school students and teachers. The joint K12 outreach program will use hands-on environmental chemistry activities to teach fundamental concepts of chemistry, biology, physics, environmental science, and mathematics. The environmental chemistry activities will highlight environmental issues in the context of both countries thereby demonstrating to students how similar environmental issues may be handled differently due to variations in geography, politics, social factors, and available resources. This will provide a global view of the application of environmental chemistry. The activities will be designed to engage American and Serbian teachers and students together in collaborative activities such as asking questions, blogging, data collection and analysis, comparing and sharing results, and giving joint presentations using web-based tools such as web cams.

Environmental chemistry topics will be identified and the corresponding hands-on activities developed by international teams of ENVR-ACS and SCS chemists and American and Serbian high school and middle school science and mathematics teachers. All lessons and activities will be then peer-reviewed for scientific content by chemists and appropriate pedagogical standards by educational professionals from both countries before being posted on the ACS and SCS websites for global dissemination. As this ACS-SCS educational outreach program becomes established, its goal is to include chemistry professional societies and science teachers from other countries in developing activities in order to produce a truly global environmental chemistry educational outreach program.

American and Serbian high school and middle school teachers assisting in the design, development and testing of the activities will be recruited by Dr. Mark A. Nanny (ENVR-ACS) and Dr. Ivanka Popović (SCS). Dr. Nanny is an Associate Professor in environmental chemistry at the University of Oklahoma who is active in similar international K12 science and engineering outreach programs between Oklahoma and Thailand. Dr. Popović is the Dean of the Chemical Engineering Department at the University of Belgrade and president of the SCS. She has developed environmental outreach programs for Serbian high school teachers and students. Environmental chemists from both Societies will be enlisted to help develop, design and peer-review lessons and activities. Joint application for funding and resources will be made to various agencies and professional societies.

This proposed K12 educational outreach collaboration was initiated at the Chemistry of Energy and the Environment Conference, organized by the Serbian Chemistry Society, held on June 19, 2009 at the University of Belgrade, Belgrade, Serbia. ENVR-ACS members attending this meeting were Dr. Jurgen H. Exner (ENVR chair), Dr. Dionysios D. Dionysiou (ENVR, fall programming chair), Dr. Mark A. Nanny (ENVR Alternate Councilor), and Dr. Mary M. Exner, (ENVR). The ACS environmental

group presented three papers entitled “Developing a Global Environmental Ethic (Exner and Exner),” “Environmentally Friendly Nanotechnologies (Dionysiou),” and “Landfills:from Refuse to Resource (Nanny)” at the conference in addition to meeting with SCS officers afterwards to discuss professional collaborations between the Societies. In addition to the educational cooperation, plans for collaborative research and exchange of scientists were also discussed.



Welcome to Belgrade: Mary Exner, Ivanka Popović (standing), Boran Radac, Branimir Jovančičević, Dion Dionysiou, Mark Nanny, Jurgen Exner by Mark Nanny



Setting up for Lectures at Belgrade University: Jurgen Exner, Bojan Radak, Mark Nanny, picture by Mary Exner



Informal Discussions During Danube River Trip: Mary Exner, Jurgen Exner, Mark Nanny, Dion Dionysiou, Ivanka Popović, by Bojan Radak