

# *East meets West*

## **NATO ADVANCED RESEARCH WORKSHOP**

### **The Role of Ecological Chemistry in Pollution Research and Sustainable Development**

*Chisinau, Republic of Moldova October 8-12, 2008*

# PROGRAMME

#### **Organised by:**

- Braunschweig University of Technology, Germany
- Academy of Sciences of Moldova
- Moldovan Research and Development Association
- Department of Industrial and Ecological Chemistry, State University of Moldova

#### **Hosted by:**

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# NATO Advanced Research Workshop

## The Role of Ecological Chemistry in Pollution Research and Sustainable Development

October 8-12, 2008, Chisinau, Republic of Moldova

### Programme

October 2008, Wednesday		
<b>PARTICIPANTS ARRIVAL AND ACCOMODATION</b>		Airport, Bus & Train Terminals – Hotel DACIA
9 October 2008, Thursday		
<b>PARTICIPANTS REGISTRATION</b>	<b>8.00-9:00</b>	Academy of Sciences of Moldova (ASM)
<b>WELCOMING SPEECHES</b>	<b>9.00-9:30</b>	ASM Blue Conference Hall
<i>Session 1</i> <b>ORGANIC POLLUTANTS AND POPS IN THE ENVIRONMENT – OCCURRENCE, FATE AND PREVENTION MEASURES</b>	<b>9:30-11:00</b>	ASM Blue Conference Hall
<b>Coffee – Tea</b>	<b>11:00-11:30</b>	ASM Gold Conference Hall
<i>Session 1</i> <b>Continuation</b>	<b>11:30-12:30</b>	ASM Blue Conference Hall
<b>Session Discussion</b>	<b>12:30-13:30</b>	ASM Blue Conference Hall
<b>Lunch</b>	<b>13:30-14:30</b>	ASM Gold Conference Hall
<i>Session 2</i> <b>WATER POLLUTION AND WASTEWATER TREATMENT</b>	<b>14:30-16:00</b>	ASM Blue Conference Hall
<b>Coffee-Tea</b>	<b>16:00-16:30</b>	ASM Gold Conference Hall
<i>Session 2</i> <b>Continuation</b>	<b>16:30-17:30</b>	ASM Blue Conference Hall
<b>Session Discussion</b>	<b>17:30-18:30</b>	ASM Blue Conference Hall
<b>WELCOME RECEPTION</b>	<b>18:30-21:00</b>	Milestii Mici Winery
10 October 2008, Friday		
<i>SESSION 3</i> <b>SOIL POLLUTION AND PREVENTION</b>	<b>9:00-10:00</b>	ASM Small Conference Room
<b>Coffee – Tea</b>	<b>10:00-10:30</b>	ASM Gold Conference Hall
<i>Session 3</i> <b>Continuation</b>	<b>10:30-11:30</b>	ASM Small Conference Room
<b>Session Discussion</b>	<b>11:30-12:30</b>	ASM Small Conference Room
<b>Lunch</b>	<b>12:30-13:30</b>	ASM Gold Conference Hall
<i>Session 4</i> <b>WASTE MANAGEMENT</b>	<b>13:30-15:10</b>	ASM Small Conference Room
<b>Coffee – Tea</b>	<b>15:10-15:40</b>	ASM Gold Conference Hall
<i>Session 4</i> <b>Continuation</b>	<b>15:40-16:20</b>	ASM Small Conference Room
<b>Session Discussion</b>	<b>16:20-17:20</b>	ASM Small Conference Room
<i>SESSION 5</i> <b>RISK ASSESSMENT, MITIGATION MEASURES AND ENVIRONMENTAL AWARENESS</b>	<b>17:20-18:40</b>	ASM Small Conference Room
<b>Sessions Discussion</b>	<b>18:40-19:40</b>	ASM Small Conference Room
<b>RECEPTION</b>	<b>19:40-21:30</b>	ASM Gold Conference Hall
11 October 2008, Saturday		
<b>WINE FESTIVAL – Opening Ceremony</b>	<b>9:30</b>	Chisinau Downtown
<i>Session 6</i> <b>GENERAL DISCUSSION, CONCLUSIONS &amp; RECOMMENDATIONS</b>	<b>15:00-18:00</b>	Hotel Dacia, 1st Floor
<b>CLOSING CEREMONY</b>	<b>18:00</b>	Hotel Dacia, Restaurant
12 October 2008, Sunday		
<b>PARTICIPANTS DEPARTURE</b>		Hotel DACIA – Airport, Train & Bus Terminals
<b>WINE FESTIVAL</b>	<b>10:00-22:00</b>	Chisinau Downtown



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## PURPOSE

Sustainable Development has become the leading concept of the 21 century. It describes a development, which agrees with the needs of the present generation, but does not endanger the chances of the coming generations to satisfy also their needs. "Sustainable development" has become an important general goal for all fields of life like economy, ecology and social balance. The development and shaping of our future has been discussed internationally like on the summits of the Conferences in Rio and in Johannesburg. But this is also a topic on national base in various countries. E.g. in Germany, the Enquete- Commission of German Parliament has founded the legislative act "Protection of Man and Environment" to investigate and work on the needs of sustainable development. This concept has also been accepted by leading authorities in various fields of economy and politics. But for putting these principles to practice, now also companies need consultants who are competent to apply the rules of sustainable development in their special fields.

Although the concept of sustainable development has been generally accepted, there are still problems how to achieve and evaluate these general goals. It is clear that the definitions about the prime needs vary from man to man, from country to country and from continent to continent. But pollution does not respect national borders. Therefore, it is necessary to develop the politics of economy, ecology and social demands by a synergistic way that they are strengthened by each other. If it is not possible to stop tendencies which threaten the future quality of life, the cost demands of societies will dramatically increase and negative tendencies will become irreversible.

The European policy agrees to go a common way of sustainable development and to establish the general conditions for this. The coming years will show how well the defined model can be realized. This is the main task for politics. But other subjects like NGOs, associations of research institutions and the industry as well as organizations for the protection of nature play also an important part to develop the model of sustainable development.

Research and innovation are preconditions for the transformation of economic and social processes in favor of a sustainable development. Chemistry, the science and practice of the transformation of matter, is of central importance thereby.

**The objective of this workshop** is to take an inventory on the state-of-the-art of pollution research in the NIS, Middle East and Western European Countries on Pollution Research and then to present promising approaches and strategies for environmentally friendly technologies towards a sustainable development including capacity building by education.

Around 60 participants from 12 countries will take part in the workshop sessions and discussions in order to exchange of ideas, experiences and latest achievements on the topics presented for discussions.

During a previous International Conference on Ecological Chemistry in Chisinau, Moldova, 2005, it was concluded to strengthen the interactions between the scientists in environmental chemistry from Western and Eastern Europe, USA, Arab and NIS Countries to promote the exchange of the latest experience and closer involvement of scientists in international cooperation. The proposed workshop is called:

- to review a set of ecological chemistry issues from pollution research to sustainable development relevant to regional and international cooperation;
- to explore ways of strengthening the role of researchers in environmentally friendly policies and decision making in the national and regional contexts;
- to enhance the role of ecological chemistry in society and the building of knowledge societies based on a peaceful development in Western and Eastern Europe, USA, Arab and NIS countries.

## Format sessions

The Workshop sessions will have a common format. They will consist of four to seven presentations of 15 minutes each. Presentation will be made by specialists from various regions focusing on the national/regional dimensions. The sessions will be moderated by prominent experts in the appropriate areas. The sessions will be following each other and the last session will be devoted to the discussion and approval of the conclusions and recommendations. The workshop language will be English only.



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## The Role of Ecological Chemistry in Pollution Research and Sustainable Development

October 8-12, 2008, Academy of Sciences of Moldova, Chisinau / Moldova

### PROGRAMME

9 October 2008, Thursday

**8.00** DACIA Hotel Lobby – Departure to the Academy of Sciences of Moldova

**8.00-9:00** PARTICIPANTS REGISTRATION

**9.00-9:30** WELCOMING SPEECHES

**Prof. Dr. Ali Müfit Bahadır**, Vice-President for Research, Junior Scientists and Technology Transfer of the Braunschweig University of Technology, Institute of Ecological Chemistry and Waste Analysis, Germany

**Acad. Prof. Gheorghe Duca**, President of the Academy of Sciences of Moldova

**Dr. Herbert G. Boechzelt**, *Graz, Austria* - BIOREFINERIES: COMBINED PRODUCTION OF BIOBASED CHEMICALS AND ENERGY

**9:30-11:00** Session 1 ORGANIC POLLUTANTS AND POPS IN THE ENVIRONMENT – OCCURRENCE, FATE AND PREVENTION MEASURES

**Moderator: Ali Müfit Bahadır**, Vice-President for Research, Braunschweig University of Technology

**Jacob de Boer**, *Ijmuiden, The Netherlands* – BROMINATED FLAME RETARDANTS IN THE ENVIRONMENT

**Ahmet Harun Parlar**, *Munich, Germany* – ANALYTICAL DETERMINATION AND TOXICOLOGICAL EFFECTS OF CHIRAL RESIDES IN THE ENVIRONMENT

**Stefano Raccanelli**, *Venice, Italy* – SOURCES AND FATES OF DIOXINS AND POLYCHLOROBYPHENYLS IN VENETIAN LAGOON

**Boris Zlobenko**, *Kiev, Ukraine* – PHYSICO-CHEMICAL ASPECTS OF VOLATILE ORGANIC CHEMICALS ADSORPTION ON CLAY MINERALS

**11:00-11:30** Coffee – Tea

**11:30-12:30** Session 1 Continuation

**Özcan Ceylan**, *Istanbul, Turkey* – MONITORING AND MEASURES ON POPs IN TURKEY

**Svitlana Sukhorebra**, *Kiev, Ukraine* – CURRENT STATE IN THE FIELD OF POPs MANAGEMENT IN UKRAINE

**Ion Barbarasa**, *Chisinau, Moldova* – POPs MANAGEMENT IN THE REPUBLIC OF MOLDOVA

**12:30-13:30** Session Discussion

**13:30-14:30** Lunch

**14:30-16:00** Session 2 WATER POLLUTION AND WASTEWATER TREATMENT

**Moderator: Gheorghe Duca**, President of the Academy of Sciences of Moldova

**Vladislav Goncharuk**, **Natalia Klimenco**, *Kiev, Ukraine* – ECOLOGICAL-HYGIENIC AND TECHNOLOGICAL ASPECTS OF PROTECTING SOURCES OF DRINKING WATER SUPPLY IN UKRAINE

**Viktor Plyusnin**, *Novosibirsk, Russia* – INTERMEDIATES IN PHOTOCHEMISTRY OF Fe(III)-CARBOXILATE COMPLEXES IN NATURAL WATERS

**Mehmet Bülent Topkaya**, *Antalya, Turkey* – STATE-OF-THE-ART OF WASTEWATER AND SLUDGE TREATMENT IN TURKEY



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**Norbert Dichtl, Timur Esemem, Braunschweig, Germany** – ANAEROBIC SLUDGE STABILIZATION AND RECOVERY OF PHOSPHORUS

**16:00-16:30**      **Coffee – Tea**

**16:30-17:30**      **Session 2 Continuation**

**Mehmet Emin Aydin, Konya, Turkey** – SUSTAINABLE ADOPTED WASTEWATER TREATMENT AND REUSE IN AGRICULTURE

**Igor Winkler, Chernivtsi., Ukraine** – INVESTIGATION OF THE OIL-PRODUCTS SOLUBILITY IN WATER: QUALITATIVE COMPOSITION AND QUANTITATIVE LIMITS OF THE OIL-WATER MIXTURES

**Olga Covaliova, Chisinau, Moldova** – PHOTO- AND BIODEGRADATION OF REFRACTORY ORGANICS IN WATER COMPARTMENTS

**Trahel Vardanyan, Yerevan, Armenia** – THE HYDRO-CHEMICAL CHANGES OF LAKE SEVAN WATER AFTER THE ARTIFICIAL LOWERING OF THE WATER LEVEL (**Poster**)

**Matei Macoveanu, Igor Cretescu, Iasi, Romania** – APPLICATION OF LOW-COST MATERIALS FOR OIL-SPILL SORPTION AND FOR REMOVAL OF HEAVY METAL IONS FROM WASTEWATERS (**Poster**)

**17:30-18:30**      **Session Discussion**

**18:30-21:00**      **WELCOME RECEPTION – Milestii Mici Winery**

## 10 October 2008, Friday

**8:30**              **DACIA Hotel Lobby – Departure to the Academy of Sciences of Moldova**

**9:00-10:00**      **Session 3 SOIL POLLUTION AND PREVENTION**  
**Moderator: Mehmet Emin Aydin, Selcuk University Konya**

**Serafim Andries, Chisinau, Moldova** – SOURCE AND FORM OF THE CHEMICAL DEGRADATION OF SOIL

**Nicola Senesi, Bari, Italy** – THE ROLE OF SOIL ORGANIC MATTER IN LIMITING ORGANIC POLLUTION IN SOILS

**Robert Kreuzig, Braunschweig, Germany** – VETERINARY DRUGS IN MANURE AND SOIL - PROBLEMS AND SOLUTIONS

**10:00-10:30**      **Coffee – Tea**

**10:30-11:30**      **Session 3 Continuation**

**Mufeed Batarseh, Karnak, Jordan** – CHEMICAL COMPOSITION OF URBAN STREET DUSTS IN JORDAN

**Boris Boincean, Chisinau, Moldova** – FARMING PRACTICES IN MOLDOVA FOR PREVENTING POLLUTION AND DEGRADATION OF THE ENVIRONMENT

**Aloysius Hüttermann, Göttingen, Germany** – SOIL AMENDMENT POLYMERS FOR THE MELIORATION OF DEGRADED SOILS IN SEMI-ARID CLIMATES

**11:30-12:30**      **Session Discussion**

**12:30-13:30**      **Lunch**

**13:30-15:10**      **Session 4 WASTE MANAGEMENT**  
**Moderator: Mehmet Bülent Topkaya, Vice-President of MESAEP**  
(Mediterranean Sci. Assoc. Environ. Protection)

**Tatiana Tugui, Chisinau, Moldova** – WASTE MANAGEMENT IN MOLDOVA

**Klaus Fricke, Braunschweig, Germany** – ADAPTION AND TECHNOLOGY TRANSFER OF COLLECTION, RECYCLING, TREATMENT AND DISPOSAL OF WASTE IN LOW INCOME AND EMERGING COUNTRIES

**Zdenek K. Filip, Czech Republic** – HUMIC SUBSTANCES IN MUNICIPAL REFUSE DISPOSED OF IN A LANDFILL

**Özgür Dogan, Gebze, Turkey** – SOLIDIFICATION OF INDUSTRIAL WASTES



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**Gheorghe Duca**, *Chisinau, Moldova* – TREATMENT OF WINERY SECONDARY PRODUCTS

**Maria Jitaru**, *Cluj-Napoca, Romania* – ELECTROCATALYSIS OF A MAJOR POLLUTANT, CO<sub>2</sub> TRANSFORMATION INTO USEFUL ORGANIC MATTER – FUNDAMENTAL AND APPLIED CONTRIBUTIONS (Poster)

15:10-15:40      **Coffee – Tea**

15:40-16:20      *Session 4 Continuation*

**Rawia El-Motaium**, *Cairo, Egypt*, – FATE AND BEHAVIOUR OF ORGANIC POLLUTANTS WHILE SLUDGE TREATMENT BY GAMMA-IRRADIATION

**Tatiana Rostovshchikova**, *Moscow, Russia* – NEW ENVIRONMENTALLY SAFE AND EFFECTIVE WAY FOR DESTRUCTION OF TOXIC CHEMICALS

16:20-17:20      *Session Discussion*

17:20-18:40      *Session 5 RISK ASSESSMENT, MITIGATION MEASURES AND ENVIRONMENTAL AWARENESS*

**Moderator: Ahmet Harun Parlar**, *Munich University of Technology*

**Violeta Ivanov**, *Chisinau, Moldova* – ENVIRONMENTAL IMPACT ASSESSMENT IN THE REPUBLIC OF MOLDOVA

**Nikolaj Starodub**, *Kiev, Ukraine* – BIOSENSORS IN THE SYSTEM OF EXPRESS CONTROL OF CHEMICALS REGULARLY USED AND AS TERRORIST MEANS TO PREVENT NON-DESIRABLE CONSEQUENCES

**Alfa Xenia Lupea**, *Timisoara, Romania* – COMPARATIVE STUDY OF KNOWLEDGE IN ENVIRONMENTAL PROBLEMS IN THE CONTEXT OF VARIOUS POPULATION GROUPS IN TWO EU MEMBER STATES

**Ali Müfit Bahadır**, *Braunschweig, Germany* – TEACHING SUSTAINABILITY IN CHEMICAL EDUCATION

18:40-19:30      *Session Discussion*

19:30 – **RECEPTION**

## 11 October 2008, Saturday

9:30              **Opening Ceremony - WINE FESTIVAL – CHISINAU DOWNTOWN**

15:00-18:00      *Session 6 GENERAL DISCUSSION, CONCLUSIONS & RECOMMENDATIONS*

**Moderators: Ali Müfit Bahadır**, Braunschweig, Germany

**Gheorghe Duca**, Chisinau, Moldova

### **Short Presentations of Session Outcomes by the Moderators**

**Mehmet Emin Aydin**, Konya, Turkey

**Ali Müfit Bahadır**, Braunschweig, Germany

**Gheorghe Duca**, Chisinau, Moldova

**Ahmet Harun Parlar**, Munich, Germany

**Mehmet Bülent Topkaya**, Antalya, Turkey

### **General Discussions**

### **Conclusions & Recommendations**

18:00              **Closing Ceremony at DACIA Hotel**

## 12 October 2008, Sunday

### **PARTICIPANTS DEPARTURE**

### **WINE FESTIVAL – CHISINAU DOWNTOWN**



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## The Role of Ecological Chemistry in Pollution Research and Sustainable Development

October 8-12, 2008, Academy of Sciences of Moldova, Chisinau / Moldova

### Organizing Committee Members

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**Acad. Prof. Gheorghe Duca**, President of the Academy of Sciences of Moldova, Chief of the Industrial and Ecological Chemistry Department, State University of Moldova, 1 Stefan cel Mare Boulevard, 2001 MD, Chisinau, Republic of Moldova

**Dr. Ebru Mehmetli**, TUBITAK Marmara Research Center, Institute of Chemistry and Environment, Gebze, 41470, Kocaeli, Turkey

**Dr. Lidia Romanciuc**, Executive Director, Moldovan Research and Development Association, 60 Mateevici str., 2009 MD, Chisinau, Republic of Moldova

### Acknowledgments

The Organizing Committee of the **ADVANCED RESEARCH WORKSHOP: “The Role of Ecological Chemistry in Pollution Research and Sustainable Development”** highly appreciate the financial support provided by the *NATO Public Diplomacy Division under the Award # ESP.EAP.ARW 983160*

The Organizing Committee acknowledge the contribution in the organization of the **ADVANCED RESEARCH WORKSHOP: “The Role of Ecological Chemistry in Pollution Research and Sustainable Development”** of:

**Dr. Dietmar Kaehler, Dr. Heike Dieckmann** – Braunschweig University of Technology, Germany  
**Sergiu Porcescu, Natalia Rusu** – Academy of Sciences of Moldova  
**Elena Brinza, Victor Grisco, Diana Cucos, Polina Calmis** – Moldovan Research and Development Association

**Dr. Viorica Gladchi, Igori Mardari** – State University of Moldova

Other individuals and organizations contributing to the successful organization of this event



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