



**Workshop on**

**Policy and Diplomacy for Scientists:**

**Introduction to responsible research**

**practices in chemical and biochemical**

**sciences**

**Adriatic Guesthouse (AGH), Kastler Lecture Hall**

**Trieste, Italy**

**12-15 September 2017**

Welcome to the second edition of the Workshop on Policy and Diplomacy for Scientists that the OPCW is offering, together with the TWAS and IAP, to its Member States. A three-and-a-half-day interactive training programme intended for young scientists who are engaged in research in chemistry and related fields, or handle chemicals in their laboratories.

The overall objective is to raise awareness among young scientists on the policy and diplomacy aspects that are related to chemistry in particular, and across the sciences in general. The Workshop will explore how science can be instrumental in securing the world's security and sustainability. Scientists participating in the workshop will be introduced to the Chemical Weapons Convention (CWC), and other international treaties and regulatory tools governing the transfer and the use of chemical and biological materials. The programme puts focus on drivers of peaceful applications of chemistry, such as education, ethics and responsible research practices. Participants will leave the workshop with new insights into issues of dual and multiple uses of science, and safety and security norms concerning the use of toxic and hazardous agents.

The workshop ultimately seeks to bridge the gap between scientists and policymakers, and to promote the adoption of responsible and sustainable practices by scientists worldwide.

*Working together for a world free of chemical weapons*



# PROGRAMME

**Tuesday, September 12**

08:30-09:30 Registration

09:30-10:00 Opening remarks (National Authority of Italy, OPCW, TWAS)  
*(Kastler Lecture Hall, AGH)*

## ***Session 1. Organisational framework***

10:00-10:20 Gaetano Carminati (National Authority for the CWC, MFA, Italy) – Generality on the role of The National Authority of States Parties and the Italian National Authority organization

10:20-10:40 Sergey Zinoviev (OPCW, The Netherlands) – The OPCW and the Chemical Weapons Convention: A 20-year journey toward chemical disarmament and the promotion of peaceful uses of chemistry

10:40-11:00 Peter McGrath (IAP/TWAS, Italy) – Why we are meeting in Trieste?

*11:00-11:20 Coffee break*

## ***Session 2. Science diplomacy and implications of science on policy***

11:20-11:40 Peter McGrath (IAP/TWAS, Italy) – Science Diplomacy and Science Advice: What Are They, and How Do They Work?

11:40-12:20 Jonathan Forman (OPCW, The Netherlands) – Science Advice in the Implementation of the Chemical Weapons Convention

12:20-13:00 Daniel Feakes (Biological Weapons Convention Implementation Support Unit United Nations Office for Disarmament Affairs, Geneva, Switzerland) – Implementation of BWC, Science advice, science diplomacy and the Biological Weapons Convention

*13:00-14:00 Lunch break (AGH Canteen)*

14:00-14:40 Jo Husbands (NAS, USA) – Science Organizations and Disarmament: IUPAC and the CWC and IAP and the BWC

### ***Session 3. Multiple uses of science and related security issues***

14:40-15:20 Sergey Zinoviev (OPCW, The Netherlands) – Multiple Uses of Chemicals: from Warfare to Commercial Chemicals of Concern

15:20-15:40 *Coffee break*

15:40-16:20 Jonathan Forman (OPCW, The Netherlands) – Chemical Weapons Convention Verification and Technological Change

16:20-17:00 Daniel Feakes (Biological Weapons Convention Implementation Support Unit United Nations Office for Disarmament Affairs, Geneva, Switzerland) – Biosecurity and the Biological Weapons Convention

17:00-18:00 Presentations by participants

- Imee Su Martinez (The Philippines) – The Important Role of Ethics in Chemical Safety and Security
- Md Azizul Haque (Bangladesh) – Uncontrolled application of pesticides on vegetable plants in farming: settlement of manageable policy and bioremediation technology to eradicate health complications in Bangladesh
- Tomkouani Kodom (Togo) – National policy on Science and Technology in Togo – Challenges and Prospects

18:30 *Welcome dinner buffet (AGH Canteen)*

### **Wednesday, September 13**

09:00-11:00 Alastair Hay (University of Leeds, United Kingdom) – Multiple Uses of Chemistry, an interactive workshop

11:00-11:20 *Coffee break*

11:20-13:00 Multiple Uses of Chemistry, an interactive workshop – discussion (cntd.)

13:00-14:00 *Lunch break (AGH Canteen)*

### ***Session 4. Education and ethics for the sustainable and responsible science***

14:00-14:40 Jo Husbands (NAS, USA) – The Experience of the U.S. National Academy of Sciences with Education About Dual Use Issues in the Life Sciences

- 14:40-15:20 Alastair Hay (University of Leeds, United Kingdom) – Codes of Conduct and Responsible Research Practices for Scientists and The Hague Ethical Guidelines
- 15:20-15:40 *Coffee break*
- 15:40-16:20 Léo Trembley (UNESCO, France) – UNESCO Programmes in Science Education and Capacity Building
- 16:20-17:00 Fires documentary, watching and discussion
- 17:00-18:00 Presentations by participants
- Chioma Nwakanma (Nigeria) – Absorbing Science and Technology in Addressing Policy Gaps for a Sustainable Future
  - Juan Jose Araya Barrantes (Costa Rica) – Teaching and research in Costa Rica: reality and challenges
  - Mariela Veronica Catone (Argentina) – Research & Development Center in Industrial Biotechnology: Building a bridge between Academy and Industry
  - Jérémie Muswema (DR Congo) – Chemical Safety and Security Management in Academic Institutions in DR Congo

#### **Thursday, September 14**

##### ***Session 5. Better practices and solutions for safety, security and sustainability***

- 09:00-09:40 Pietro Tundo (University of Venice and IUPAC, Italy) – Chemistry beyond chlorine
- 09:40-10:20 Detlef Maennig (Evonik Industries AG and ICCA, Germany) – Sustainability – a growth driver for chemical industry
- 10:20-11:00 *Transfer to ICGEB*
- 11:00-11:45 Introduction to ICGEB by Vittorio Venturi, Group Leader of Bacteriology and Alessandro Marcello, Group Leader of Molecular Virology
- 11:45-13:00 Visit to the laboratories and facilities
- 13:00-14:00 *Lunch break at the AREA Science Park*

- 14:00-14:40 *Transfer to University of Trieste*
- 14:40-15:10 Francesca Larese Filon (University of Trieste, Italy) – Introduction to the university and some information on the safety in the lab (Aula Cammarata)
- 15:10-17:20 Visit to laboratories of the Department of Chemistry and Pharmacy (Building C11) and Department of Life Sciences (building Q) for demonstration of chemical and bio-safety and security practices in place

***Session 6. Fostering capacity development and international cooperation in S&T***

- 17:20-18:00 Maurizio Fermeglia (University of Trieste, Italy) – The role of University as a catalyst for science, technology and society
- 20:00 *Dinner at downtown restaurant (Antico Panada)*

**Friday, September 15**

- 09:00-09:30 Max Paoli (TWAS, Italy) – Opportunities Available through TWAS  
Tonya Blowers (OWSD, Italy) – Opportunities Available through OWSD
- 09:30-10:00 Pietro Tundo (IUPAC and University of Venice, Italy) – The IUPAC Committee on Green Chemistry for Sustainable Development
- 10:00-10:30 Sergey Zinoviev (OPCW, The Netherlands) – OPCW Capacity Building Programmes for Promotion of the Peaceful Applications of Chemistry

***Discussion session***

- 10:30-11:00 Discussion on the opportunities for cooperation and dialogue between scientists and policy makers (moderators: P. McGrath, A. Hay, P. Tundo, S. Zinoviev)
- 11:00-11:20 *Coffee break*
- 11:20-12:00 Discussion, cntd.
- 12:00-13:00 Closing session and handling of certificates
- 13:00 *Lunch break (AGH Canteen)*

## SPEAKERS



### **Jo Husbands**

Jo Husbands is a Scholar with the U.S. National Academies of Sciences, Engineering, and Medicine, where her work focuses on issues related to science, technology, and security. With the Board on Life Sciences, she concentrates on (1) education and outreach in the broader context of responsible science and (2) the implications of continuing advances in the life sciences for efforts to mitigate the risks of misuse. She also represents the Academies on the Biosecurity Working Group of the InterAcademy Partnership (IAP). From 1991-2005 she was Director of the Academies' Committee on International Security and Arms Control and its Working Group on Biological Weapons Control. Before joining the National Academies, she worked for several Washington, DC-based nongovernmental organizations engaged with international security. From 2001-2012 Dr Husbands was an adjunct professor in the Security Studies Program at Georgetown University. She is a Fellow of the International Union of Pure and Applied Chemistry and an inaugural member of the Advisory Board on Education and Outreach of the Organization for the Prohibition of Chemical Weapons. She holds a Ph.D. in Political Science from the University of Minnesota and a Masters in International Public Policy (International Economics) from the Johns Hopkins University School of Advanced International Studies.



### **Pietro Tundo**

Mr Pietro Tundo is the professor of organic chemistry at Ca'Foscari University and Politecnico of Milano, Italy. His main area of research is chemistry of organic carbonates in the field of reactions of dialkyl carbonates. Prof Tundo had more than 340 research papers and 40 granted patents. He had received many international awards including American Chemical Society's Kendall Award in 1983 and appointed as member of the bureau of IUPAC. Prof Tundo established and directed Summer Schools on Green Chemistry since 2007, financially funded by the EU, UNESCO and NATO. Over ten editions of Summer Schools, roughly 600 students benefited this programme.



### **Daniel Feakes**

Daniel Feakes is the Chief of the Implementation Support Unit (ISU) of the Biological Weapons Convention within the United Nations Office for Disarmament Affairs in Geneva. He manages the activities of the ISU and the implementation of an EU Council Decision in support of the BWC. He was also the Secretary-General of the Eighth BWC Review Conference in November 2016. Daniel has wide experience both in the field of multilateral disarmament and in working with international organizations. Until November 2014 he was the Strategy and Policy Adviser in the Technical Secretariat of the Organisation for the Prohibition of Chemical Weapons (OPCW) in The Hague. From 2009 to 2013 he was a Senior Policy Officer in the OPCW's Verification Division. At the OPCW, Daniel oversaw education and outreach activities, was involved in the preparation and conduct of the Third Review Conference of the Chemical Weapons Convention and worked closely with partners in other international organizations, the scientific community and civil society. Prior to joining the OPCW in 2009, Daniel spent 12 years as a Research Fellow with the Harvard Sussex Program on Chemical and Biological Weapons where he worked on chemical and biological weapons issues and published widely on these topics.



### **Francesca Larese Filon**

Francesca Larese Filon is a medical doctor, Associate Professor in Occupational Medicine at University of Trieste. She is director of the Specialization School in Occupational Medicine and of the Bachelor degree in Environmental and Occupational Prevention Techniques. She is responsible for the Allergy unit for environmental and occupational allergies at University of Trieste. Since 2013, she is Rector Delegate for occupational safety and health at University of Trieste. She is conducting research in occupational exposure and risk assessment for workers exposed to allergens and metal nanoparticles, focusing mainly on skin contamination and skin absorption. She is and was involved in various national and international research projects. She published more than 200 original papers on foreign and Italian journals. Her H-index is 23.





### **Detlef Maennig**

Dr Detlef Maennig is an industrial chemist, having graduated from Bonn University, Germany, Yale University, U.S.A. and the University of Munich, Germany. He has worked for Evonik Industries AG in Germany, the U.S.A. and the PR of China for more than 30 years, including in Applied Technology, Environment, Production, Marketing, R&D and Sustainability. Since 1990, he has been a member and head of the VCI (German Chemical Industry Association) and Cefic (European Chemical Industry Association) Working Groups Against Chemical Weapons. In 1991-1992, he was consultant for the German delegation to the Geneva negotiations of the CWC. He served two terms on the Scientific Advisory Board of the OPCW and was member of two of its Temporary Working Groups. Currently, he is Head of the Chemical Industry Coordination Group and member of the Joint Steering Committee of OPCW and ICCA (International Council of Chemical Associations). He has numerous publications and presentations on CW-related issues.



### **Maurizio Fermeglia**

Maurizio Fermeglia is full professor at the Department of Engineering and Architecture of the University of Trieste, where he holds the course in Chemical and Biochemical Reaction Engineering and Process and Product design. From 2006 to 2012 he was the head of the Department of Industrial Engineering & Information Technology, from 2010 to 2012 he served as president of the Research board of the University of Trieste. He was the director of the Ph.D. School of Nanotechnology at the University of Trieste from 2007 to 2013. From 2013, he is the Rector of the University of Trieste. Professor Fermeglia research interests are focused: on multiscale modelling for materials design and life science, applied thermodynamics, process simulation, molecular modelling for nanotechnology and nanomedicine.

Maurizio Fermeglia is member of the EFCE working party on thermodynamics and transport properties, IUPAC fellows, member of the AIChE, member of Italian associations GRICU and AIDIC. He received the Italy meets Asia Science Award in 2015. He was scientific consultant of ICS - UNIDO within the Subprogram 'Process Simulation and sustainable development' from 1999 to 2011 and of UNEP for the implementation of PRTR in different countries from 2005 to 2013.



### **Peter McGrath**

Peter McGrath obtained his BSc (honours) in Agricultural Zoology from the University of Glasgow, UK, and followed this with a PhD from the University of Leeds, UK. His 10-year research career focused on the insect transmission of plant viruses and included postdoctoral positions at the Scottish Crop Research Institute as well as Purdue University and the University of Arizona in the USA.

Returning to the UK in 1997, he established his own business as a freelance journalist focusing on agricultural, environmental and scientific issues, and later joined The World Academy of Sciences (TWAS) as a writer/editor in the Public Information Office.

From 2006, Peter began overseeing the implementation of TWAS's core programmes, including South-South fellowships, research grants and various prizes, as well as the activities of the Organization for Women in Science for the Developing World (OWSD). Since 2013 he has acted as Coordinator of the InterAcademy Partnership (IAP), managing the activities of IAP for Science and IAP for Health, while also retaining his position as Coordinator of the TWAS science and diplomacy initiative.



### **Gaetano Carminati**

CDR Carminati was born in Rome on the 7th January 1973. In 1992 start the career in the Italian Navy. He attended Navyofficers integrative course from 1995 to 1996 at the Italian Naval Academy. In 2008 he graduated with a bachelor degree in Management and Organizational Studies with final thesis on the "Chemical Weapons Convention" and In 2016 he graduate with 1st Level Master Course in CBRN Event with thesis on "Live Agent Training in Confined Space".

Since 2007 he began his career in CBRN world where he held positions as a CBRN Teacher at NBC School of Rieti, CBRN Staff Officer at the Italian Defence General Staff and Chief of Technical Operational Unit of Italian National Authority. Since 2013 he collaborates also with the Master in CBRN events in the University of Tor Vergata as a teacher and in 2016 he was appointed Didactical Coordinator of the 1st Level Master course.



### **Alastair Hay**

Alastair Hay is Professor (Emeritus) of Environmental Toxicology at the University of Leeds, UK. Alastair has a BSc in Chemistry and PhD in Biochemistry from London University and for most of his research career has worked on biological markers of exposure to chemicals. From 1989 to 2014 Alastair advised the UK Government and latterly the EU on limits for exposure to chemicals in the workplace.

Alastair has also had a 40-year involvement with chemical weapons issues. He has conducted 6 investigations of allegations of use of chemical weapons in several countries. With a particular interest in education Alastair has worked for many years with the UK Royal Society, US National Academy of Sciences, and Organisation for the Prohibition of Chemical Weapons to develop teaching material on chemical and biological weapons. In 2015 Alastair received the OPCW / The Hague award for services to preventing chemical weapons use. Alastair currently helps train academics and students using innovative and engaging approaches to promote the responsible conduct of science.



### **Léo Trembley**

Léo Trembley joined UNESCO's Natural Sciences Sector in September 2015 and is currently developing a Science Diplomacy initiative, which capitalizes on the competence and capacity of UNESCO in this field. One of the main goals of this initiative is to move Science Diplomacy from relevance to impact, especially within the framework of the 2030 Agenda for Sustainable Development.

Léo Trembley is a trained diplomat with more than 12 years' experience with the Swiss Ministry of Foreign Affairs. In his last position with the Ministry, he was responsible for the bilateral relations with South-East Asian and the Pacific countries. Previously, he worked at the Swiss Embassy in Moscow where he was in charge of domestic affairs, human rights and media relations; and prior to that, he worked on issues related to the Middle-East and North Africa regions.

Before joining the Foreign Service, he worked as a Lawyer in commercial firms both in Switzerland and in Germany. He was awarded the Prix Droit et Législation in 1993 as best student; and the 3rd prize at the Geneva Bar's Oratory contest in 1999.



### **Jonathan Forman**

Dr Jonathan Forman currently holds the post of Science Policy Adviser at the Organisation for the Prohibition of Chemical Weapons (OPCW), also serving as the Secretary to OPCW's Scientific Advisory Board. Dr Forman holds a Bachelor's of Science in chemistry from the California State University at San Bernardino and a Ph.D. in chemistry from the California Institute of Technology. After completing his graduate studies in 1996, Dr Forman worked for a series of biotechnology companies developing molecular diagnostic and bioanalytical assay technologies for genomic, immunoassay, and cell capture applications; eventually becoming an independent consultant for process and product development of chip-based assay platforms. His professional interests include assessment of emerging technologies, bringing effective science advice into policy making, and science diplomacy. Dr Forman has been at the OPCW (and away from Silicon Valley) since March of 2013.



### **Sergey Zinoviev**

Sergey Zinoviev holds a PhD in Physical Organic Chemistry from the N.D. Zelinsky Institute of Organic Chemistry of RAS from 2002. In 1997-2001 in Russia and from 2001 at the Interuniversity Consortium "Chemistry for the Environment" in Italy he was doing research in kinetics and mechanistic studies of organic reactions, green chemistry and applications of catalysis for destruction of pollutants. Joined ICS-UNIDO in 2007 as an Associate Scientific Officer, he was in charge of capacity building programmes on biofuels and biorefineries, POPs, environmental technologies, etc. Starting from 2014, as a Senior International Cooperation Officer in the OPCW he has been in charge of programmes for research grants, fellowships, as well as various trainings in the fields of chemical safety and security and analytical chemistry. He was leading the recent OPCW initiatives on twinning laboratories, green chemistry, science diplomacy, and Responsible Care ® seminars.

**Other Speakers**

<b>Name</b>	<b>Position</b>	<b>Employer</b>
Tonya Blowers	Coordinator	OWSD
Max Paoli	Programme coordinator	TWAS





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