



ACCADEMIA NAZIONALE DEI LINCEI



NATIONAL ACADEMY OF SCIENCES

XXIII EDOARDO AMALDI CONFERENCE

# **Nuclear Weapon Risks in a Problematic Time**

Rome, 28 - 30 October 2024

PROGRAM

## MONDAY, 28 OCTOBER

9:00 - 9:30 Registration

9:30 - 10:00

### Opening addresses

Roberto ANTONELLI, President of the Accademia Nazionale dei Lincei

Marcia MCNUTT, President of the National Academy of Sciences

Paolo COTTA-RAMUSINO, Pugwash Conferences

Luciano MAIANI, Accademia Nazionale dei Lincei

10:00 - 10:30

### Keynote lecture

Chair: Francesco CALOGERO  
(SICA, Sicurezza Internazionale e Controllo degli Armamenti  
Committee, Accademia Nazionale dei Lincei)

Hussain AL SHAHRISTANI, President of Pugwash Conferences  
*Nuclear Risks in Current Conflicts*

10:30 - 10:50

Coffee break

### 1. Increasing Risks to Use Nuclear Weapons

Chair: Francesco LENCI  
(SICA, Sicurezza Internazionale e Controllo degli Armamenti  
Committee, Accademia Nazionale dei Lincei)

10:50 - 11:30

Mariana BUDJERYN, Harvard Belfer Center  
*Nuclear Risks in the Russian-Ukrainian War*

11:30 - 12:10

Tatsujiro SUZUKI, University of Nagasaki  
*Reducing Risks of Nuclear Weapons Use in North-East Asia*

12:10 - 12:50

Anton KHLOPKOV, CENESS, Center for Energy and Security Studies,  
Moscow  
*Nuclear Risks in Northern-Eastern Asia*

12:50 - 13:30

Eldar MAMEDOV, Member of the Pugwash Council for Science & World  
Affairs  
*Iran and Escalation in the Middle East*

13:30 - 14:30

Lunch break

## 2. Artificial Intelligence and Space

Chair: Massimo INGUSCIO  
(Accademia Nazionale dei Lincei)

- 14:30 - 15:10 Marc MÉZARD, Bocconi University  
*Controlling AI? A Technological Revolution Waiting for a Theory*
- 15:10 - 15:40 Guglielmo TAMBURRINI, University of Naples Federico II  
*Militarization of AI: New Threats for Peace and the Human Control of Warfare*
- 15:40 - 16:20 Götz NEUNECK, University of Hamburg  
*Nuclear Weapons in Space - New Threats and Arms Control Solutions*
- 16:20 - 16:40 Coffee break
- 16:40 - 17:20 Alexey ARBATOV, Russian Academy of Sciences  
*Polycentric Nuclear Deterrence and Arms Control*

### 17:20 - 18:30 **Panel Discussion: Nuclear Risks in Current Wars**

Chair: Raymond JEANLOZ  
(CISAC, Committee for International Security and Arms Control,  
National Academy of Sciences, USA)

Francesco LENCI, SICA, *Sicurezza Internazionale e Controllo degli Armamenti* Committee, Accademia Nazionale dei Lincei

ZHAO Wuwen, CAEP, China Academy of Engineering Physics

Fabrizio BATTISTELLI, Archivio Disarmo

18:30 End of Session

## TUESDAY, 29 OCTOBER

### 3. Increasing Dangers in a New World Order

Chair: Micah LOWENTHAL  
(Senior Board Director/Program Director,  
National Academy of Sciences, USA)

- 9:30 - 10:10 Gian Piero SIROLI, University of Bologna  
*The Dark Side of ICT, Cyber-Info Warfare and International Security*
- 10:10 - 10:50 Alessandro PASCOLINI, SICA, *Sicurezza Internazionale e Controllo degli Armamenti* Committee, Accademia Nazionale dei Lincei  
*The Non-Proliferation Treaty at Its Midlife Crisis*

- 10:50 - 11:30 Nadezhda ARBATOVA, IMEMO, Moscow  
*Current Russian Debate on Nuclear Escalation*
- 11:30 - 11:50 Coffee break
- 11:50 - 12:30 Sergey BATSANOV, Pugwash Conferences, Geneva  
*Increase of Nuclear Risks in the Times of Global Instability*
- 12:30 - 13:10 David MENASHRI, Tel Aviv University  
*Israel: Between Iran's Regional Ambitions and its Nuclear Program*
- 13:10 - 14:10 Lunch break
- 14:10 - 14:50 Karen HALLBERG, Pugwash Conferences  
*The Way of Science Diplomacy for Confidence Building and Peace*
- 14:50 - 15:30 Taghreed EL-KHODARY, Palestinian commentator and media expert  
*Perspectives of a Two State Solution After the Recent Escalation in the Middle East*

#### **4. Nuclear Energy for the Future**

Chair: Luciano MAIANI  
(Accademia Nazionale dei Lincei)

- 15:30 - 16:10 Francesco PEGORARO, University of Pisa  
*The International Quest for Nuclear Fusion, Past and Future*
- 16:10 - 16:50 Bruno PANELLA, Politecnico di Torino  
*The New Generation of Nuclear Fission Reactors*
- 16:50 - 17:10 Coffee break

#### **17:10 - 18:10 Panel Discussion: How to Restart the Dialogue on Nuclear Disarmament**

Chair: Carlo SCHAERF  
(SICA Committee - ISODARCO)

Alessandro PASCOLINI, SICA, Sicurezza Internazionale e Controllo degli Armamenti Committee, Accademia Nazionale dei Lincei

Anton KHLOPKOV, CENESS, Center for Energy and Security Studies, Moscow

ZHANG Qizheng, CAEP, China Academy of Engineering Physics

- 18:10 End of Session

## WEDNESDAY, 30 OCTOBER

- 10:00 - 10:40 David ELLWOOD, Pugwash Conferences  
*Is a Minimum Deterrent Mad?*
- 10:40 - 11:20 Persis DRELL, Stanford University  
*International Science Cooperation and Science Diplomacy: Challenges and Opportunities*
- 11:20 - 11:40 Coffee break
- 11:40 - 12:00 General discussion
- 12:00 - 12:40 Paolo COTTA-RAMUSINO, Pugwash Conferences  
*Concluding remarks*
- 12:40 End of the Conference

### VENUE OF THE MEETING

Accademia Nazionale dei Lincei  
Palazzo Corsini  
Via della Lungara 10  
Rome

[www.lincei.it](http://www.lincei.it)

## **The Accademia Nazionale dei Lincei**

Founded in 1603, the Accademia Nazionale dei Lincei is the oldest scientific academy in the world which included, among many other prestigious names, Galileo Galilei. The Accademia Nazionale dei Lincei is within the sphere of the Italian Ministry of Cultural Heritage and is considered the highest Italian cultural institution. The Accademia Nazionale dei Lincei is a scientific consultant to the President of the Italian Republic and has recently been granted his High Permanent Patronage. The Accademia Nazionale dei Lincei mission is to promote, coordinate, integrate and spread scientific knowledge in its highest expressions, in the frame of cultural unity and universality. To this end, the Accademia Nazionale dei Lincei organises national and international conferences, meetings and seminars.

## **The National Academy of Sciences**

Established by an Act of Congress signed by President Abraham Lincoln in 1863, the National Academy of Sciences is charged with providing independent, objective advice to the nation on matters related to science and technology. The National Academy of Sciences is committed to furthering science in America, and its members are active contributors to the international scientific community. Nearly 500 members of the National Academy of Sciences have won Nobel Prizes, and the Proceedings of the National Academy of Sciences, founded in 1914, is today one of the premier international journals publishing the results of original research. The National Academy of Sciences also encourage education and research, recognize outstanding contributions to knowledge, and increase public understanding in matters of science.

## **A brief history of the Edoardo Amaldi Conferences**

In 1980, the United States National Academy of Sciences established a Committee on International Security and Arms Control (CISAC). During the 1980s, with Wolfgang K. H. Panofsky as Chairman, one of CISAC's main purposes was to maintain bilateral contacts with an analogous group at the Academy of Sciences of the Soviet Union. In January 1986, CISAC organized in Washington, D.C. a meeting and about ten scientists from European countries participated. In this meeting questions connected to arms control were discussed, together with the possibility of establishing in Europe a group of scientists with a role analogous to that of CISAC. Discussions on international security and armament control were extended beyond the limitation of a direct link between the USA and the USSR.

Francesco Calogero and Carlo Schaerf took part in this meeting and then reported to Edoardo Amaldi, then Vice President of the Accademia Nazionale dei Lincei. He was very much in favour of this initiative and set up a Working Group on International Security and Arms Control (SICA).

The first informal meeting was held in Rome at the Academy on 23-25 June 1988, and was entitled *Workshop on International Security and Disarmament: The Role of the Scientific Academies*. Participants from Belgium, Denmark, France, Federal Republic of Germany, Great Britain, the Netherlands, Sweden and the USA were present at this meeting. On that occasion it was decided to hold an international conference the following year and to invite participants from other European countries, including the Soviet Union.

The second meeting was entitled *International Security and Disarmament: the Role of the Scientific Academies* and was held in Rome in June 1989.

The third conference, entitled *International Conference on Security in Europe and the Transition away from Confrontation towards Cooperation*, was held again in Rome in June 1990. The title, the programme, and the specific items had already been established by Edoardo Amaldi (who was President of the Academy at the time) and the SICA group when he died unexpectedly on 5 December 1989. Prof. Giorgio Salvini was elected to succeed him as President of the Academy and decided to continue the Amaldi's initiative on disarmament and arms control. The third meeting was devoted to problems of peace, environmental cooperation, and measures of effective disarmament in the new international climate. It was at this meeting that the participants decided to dedicate all future conferences to the memory of Edoardo Amaldi, hence the name *Amaldi Conferences*. Since then the Amaldi Conferences continued on a yearly basis up until 2000, and later periodically.

#### Latest Conferences:

- XIX Edoardo Amaldi Conference on *International Cooperation for Enhancing Nuclear Safety, Security, Safeguards and Non-proliferation*, organized by the Accademia Nazionale dei Lincei and the European Commission - Joint Research Centre (Rome, 30-31 March 2015).
- XX Edoardo Amaldi Conference on *International Cooperation for Enhancing Nuclear Safety, Security, Safeguards and Non-proliferation - 60 Years IAEA Atoms for Peace and Development - EURATOM Treaty*, organized by the Accademia Nazionale dei Lincei and the European Commission - Joint Research Centre (Rome, 9-10 October 2017).
- XXI Edoardo Amaldi Conference on *International Cooperation for Enhancing Nuclear Safety, Security, Safeguards and Non-proliferation*, organized by the Accademia Nazionale dei Lincei and the National Academy of Sciences, USA (Rome, 7-8 October 2019).
- XXII Edoardo Amaldi Conference on *International Cooperation for Enhancing Nuclear Safety, Security, Safeguards and Non-proliferation. Problems and Progress in the Time of Pandemics and War*, organized by the Accademia Nazionale dei Lincei and the National Academy of Sciences, USA (Rome, 6-8 April 2022).

#### **Edoardo Amaldi (1908-1989)**

Edoardo Amaldi was an Italian Physicist who started his research in Nuclear Physics in collaboration with Enrico Fermi. He has contributed substantially to the current knowledge on artificial radioactivity induced by neutrons and properties of slow neutrons, and gave first direct experimental evidence of the diffraction of fast neutrons by nuclei. After the Second World War, Amaldi was instrumental in the reconstruction of the post-Fermi School of Physics in Italy, and was co-founder of the Italian National Institute for Nuclear Physics (INFN), of the European Organization for Nuclear Research (CERN) and of the European Space Research Organisation (ESRO).

Amaldi supported the Working Group on International Security and Arms Control (SICA) from its inception, organizing the first conference on "International Security and Disarmament: The Role of the Scientific Academies" in Rome from 23 to 25 June 1988. The third conference on "Security in Europe and the Transition away from Confrontation towards Cooperation" was held again in Rome in June 1990. The title, the programme and the specific items had already been established by Edoardo Amaldi (President of the Academy at the time) and the SICA group when he died unexpectedly on 5 December 1989. Participants at this meeting decided to dedicate future meetings to the memory of Edoardo Amaldi, hence the name Amaldi Conferences. Since then the Amaldi Conferences have continued on a regular basis.