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PROGRAMME

Nuclear Disarmament at a Crossroads

Second annual conference of

the Alva Myrdal Centre

for Nuclear Disarmament

*Wednesday 14th until*

*Thursday 15th June 2023*

#AlvaMyrdalCentre2023

Distinguished Conference Attendants,

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s director of the Alva Myrdal Centre for Nuclear Disarmament at Uppsala University, I am pleased to wish you all warmly welcome to our second annual cross-disciplinary conference, “Nuclear Disarmament at a Crossroads.”

As we meet here in Uppsala and online, the world is undeniably in a very difficult situation regarding nuclear disarmament. While the total number of nuclear weapons in the world is decreasing, this is mainly due to the dismantlement of old weapons in storage. The number of nuclear warheads deployed with operational forces is increasing, and nuclear-armed states continue modernizing their arsenals. In the relationship between the largest nuclear-weapon powers, Russia and the United States, only one important arms control agreement remains, the Measures for the Further Reduction and Limitation of Strategic Offensive Arms (the New START Treaty). However, Russia recently suspended its participation in the treaty. This treaty will expire in early 2026 if negotiations for an extension are not initiated, and the prospects for such talks appear remote as these lines are written. Attempts to revive the suspended nuclear energy agreement, the Joint Comprehensive Plan of Action (JCPOA), with Iran have failed. Meanwhile, North Korea conducts more missile tests than ever before. In sum, the prospects for international cooperation and responsibility between the major powers are exceptionally bleak, and the outlook for disarmament, non-proliferation, and arms control seems worse than it has been in a long time.

Our annual cross-disciplinary conference concerns nuclear disarmament in a broad sense, including arms control and non-proliferation. We thus hope that the conference will contribute to new knowledge about critical short-term challenges, such as measures for transparency and crisis management, as well as the difficult long-term prospects for genuine disarmament. Our ambition is to combine insights from different disciplines such as peace and conflict research, applied nuclear physics, international law, and many more. I am therefore pleased to see the breadth of the programme and that so many knowledgeable and engaged scholars from different backgrounds are ready to take part in critical scientific exchanges during our conference. In these troubling times, your new knowledge is all the more important.

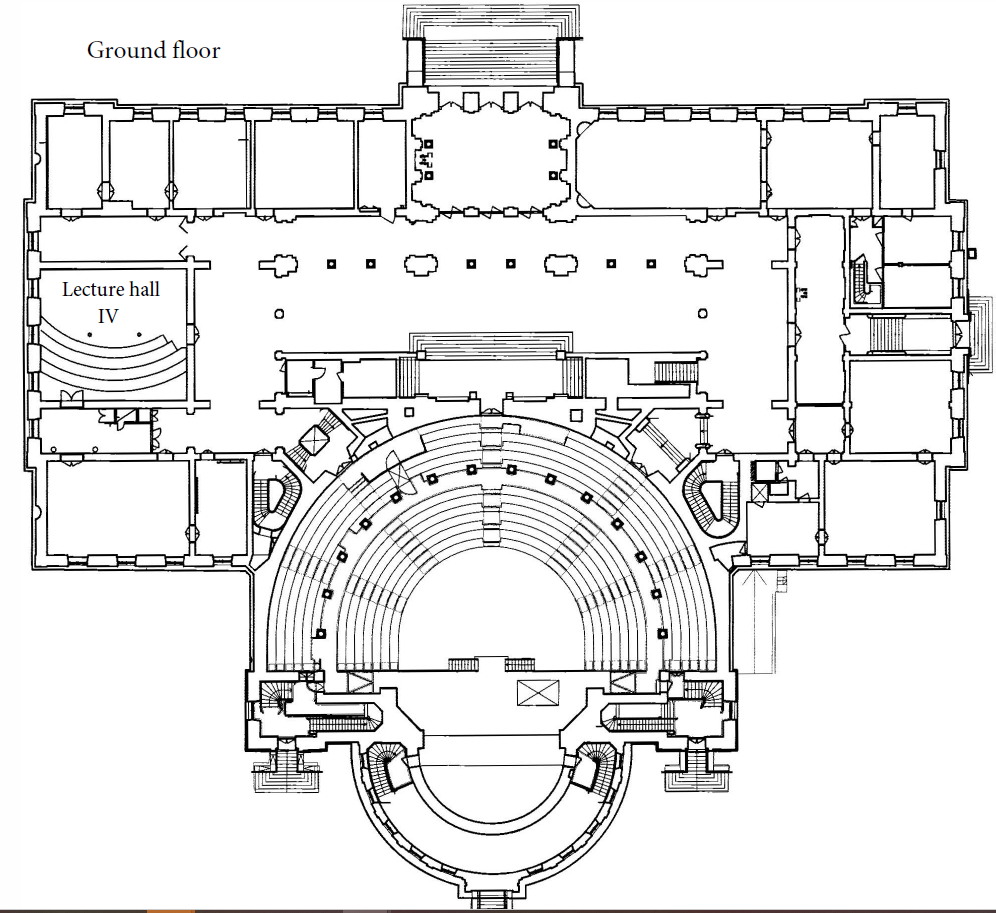
Once again, welcome to Uppsala – I hope your conference will be productive!

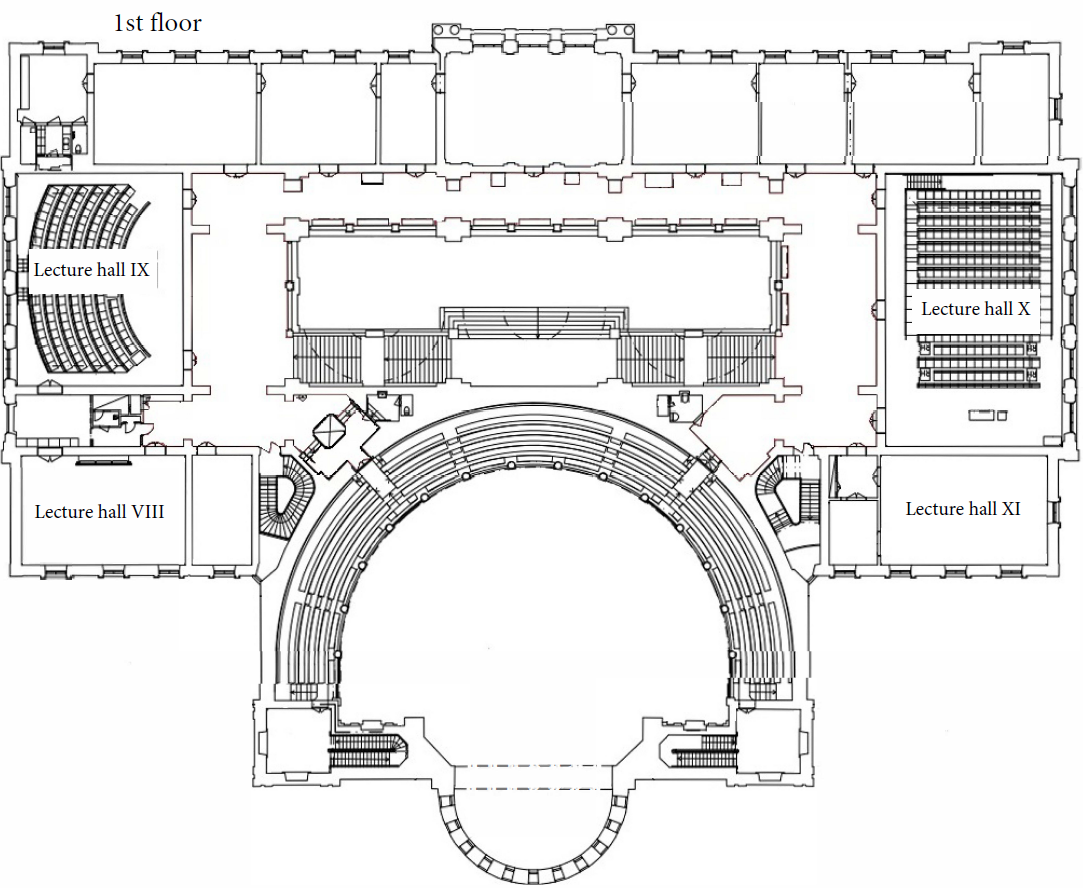


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| Wednesday 14 June | | | | |  |
| 08:30-09:00 | Registration & light breakfast *Venue: Hallway outside lecture hall X* | | | |  |
| 09:00-09:10 | Welcome *Venue: Lecture hall X* | | | |  |
| 09:10-09:25 | Keynote address by Ann-Sofie Nilsson *Venue: Lecture hall X* | | | |  |
| 09:25-10:10 | Poster presentations *Venue: Lecture hall X* | | | |  |
| 10:10-11:00 | Poster viewing/discussion & Coffee break *Venue: Café Alma* | | | |  |
| 11:00-12:30 | 1A: From Alva Myrdal to the NATO application: Have critical perspectives disappeared? *Venue: Lecture hall X* | 1B: Fake news: Disinformation and setting the record straight *Venue: Lecture hall IX* | 1C: Nuclear security and nuclear regulations *Venue: Lecture hall IV* |  |  |
| 12:30-13:30 | Lunch break | | | | Posters still up in the hallway outside the chancellor's rooms. ↓   ↓   ↓   ↓ |
| 13:30-15:00 | 2A: Developments in Open Source Intelligence (OSINT): Opportunities and challenges *Venue: Lecture hall X* | 2B: Nuclear disarmament and the utility of sanctions *Venue: Lecture hall IX* | 2C: Dealing with the nuclear past: The role of the Global South in decolonizing nuclear knowledge*Venue: Lecture hall IV* | 2D:  Implementing the positive obligations of the TPNW *Venue: Lecture hall XI* |
| 15:00-15:30 | Coffee break *Venue: Hallway outside lecture hall X* | | | |
| 15:30-17:00 | 3A: NATO and the Nordic state perspective*Venue: Lecture hall X* | 3B: Nuclear fuel cycle simulations*Venue: Lecture hall IX* | 3C: In the aftermath of the Russian invasion of Ukraine *Venue: Lecture hall IV* | 3D: Tracking progress towards a world without nuclear weapons*Venue: Lecture hall XI* |
| 18:00-21:00 | Conference dinner (pre-registration required) *Venue: Hantverksföreningens hus* | | | |  |
|  | | | | |  |
| Thursday 15 June | | | | |  |
| 09:00-10:30 | 4A: Modernising or disarming? Understanding developments in nuclear weapons policies*Venue: Lecture hall X* | 4B: Nuclear security: Technology and Geopolitical Considerations *Venue: Lecture hall IX* | 4C: Reconsidering influences on disarmament policy*Venue: Lecture hall IV* | 4D: Advocating for youth in disarmament - Lessons Learned from UNODA's #Leaders4Tomorrow initiative*Venue: Lecture hall XI* | Posters still up in the hallway outside the chancellor's rooms. ↓   ↓   ↓   ↓   ↓   ↓   ↓ |
| 10:30-11:00 | Coffee break *Venue: Hallway outside lecture hall X* | | | |
| 11:00-12:30 | 5A: Nuclear Diplomacy and Negotiations *Venue: Lecture hall X* | 5B: Nuclear disarmament in Central and Eastern Europe*Venue: Lecture hall IX* | 5C: Emerging technology and disarmament verification *Venue: Lecture hall IV* | 5D: NATO membership impact on nuclear policy and practice*Venue: Lecture hall XI* |
| 12:30-13:30 | Lunch break | | | |
| 13:30-15:00 | 6A: Mapping nuclear negotiations and agreements: Towards More Comprehensive Data *Venue: Lecture hall X* | 6B: Lurking in the shadows: Emerging risks of nuclear escalation*Venue: Lecture hall VIII* N.B. No live stream | 6C: Missile proliferation, nuclear disarmament and demilitarization: a Cross-Disciplinary Approach*Venue: Lecture hall IV* | 6D: Nonproliferation vs Disarmament*Venue: Lecture hall XI* |
| 15:00-15:30 | Coffee break *Venue: Hallway outside lecture hall X* | | | |
| 15:30-15:55 | Keynote address by Prof. David Cortright *Venue: Lecture hall X* | | | |  |
| 15:55-16:20 | Keynote address by Ulla Gudmundson *Venue: Lecture hall X* | | | |
| 16:20-16:30 | Thank you & goodbye *Venue: Lecture hall X* | | | |

Floor plan Uppsala University Main Building

*(Biskopsgatan 3, 753 10 Uppsala)*

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WEDNESDAY 14 JUNE

09:00 – 09:10 | Lecture hall X, 1st floor

**Welcome by Cecilia Wikström**, Chair of the Board for Alva Myrdal Centre for Nuclear Disarmament

09:10 – 09:35 | Lecture hall X, 1st floor

**Keynote address by Ann-Sofie Nilsson,** Deputy Director-General and Head of Department for Disarmament and Non-Proliferation at the Ministry for Foreign Affairs

*Swedish Perspectives on Arms control, Disarmament and Non-proliferation*

Ann-Sofie Nilsson is Deputy Director-General and Head of the Department for Disarmament and Non-proliferation at the Ministry for Foreign Affairs in Sweden. She was previously the Ambassador for Disarmament and Non-proliferation at the same department. She joined the Ministry for Foreign Affairs in 1996 and has, prior to her current position, served among other as Director-General for International Development Cooperation, Swedish Consul General in Jerusalem and as Head of the Swedish Liasion Office in Pristina. In addition, she held positions at the Swedish embassies in Amman and Sarajevo. She has also been working for the United Nations High Commissioner for Refugees in field position.

09:35 – 10:15 | Lecture hall X, 1st floor

**Poster presentations [[1]](#footnote-1)**

Chair: Dr. Erik Melander, Professor, Department of Peace and Conflict Research, Uppsala University and Director of the Alva Myrdal Centre for Nuclear Disarmament

*Comparison of the physical and operational parameters of the CANDU reactor and the NRX reactor*

**Dr. Cecilia Gustavsson**, Associate Professor, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4

Co-authors: **Dr. Erik Branger**, Researcher, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4; **Dr. Sophie Grape**, Associate Professor, Department of Physics and Astronomy, Uppsala University and leader of AMC’s Working Group 4; **Vaibhav Mishra**, PhD student, Department of Physics and Astronomy, Uppsala University

Several historic and current nuclear weapons programs are based on heavy-water moderated reactors for plutonium production. While details about the military reactors are scarce, much more information exist on civilian heavy-water moderated reactors. The CANDU reactor is the most developed one, and there is much openly available design and operation data that can be used to simulate it. The CANDU design uses heavy water for moderation and cooling together with low-enriched uranium fuel which is frequently refueled. This reactor type is not optimized for military plutonium production, but is on the contrary extensively used in civil energy production.

It has never been unambiguously proven that a CANDU reactor has been used for producing plutonium for nuclear weapons. In the case of both India and Pakistan, another type of reactor is believed to have been used to manufacture plutonium. This type is based on the NRX (National Research Experimental) reactor at Chalk River Laboratories in Canada, a predecessor of the CANDU reactor. The NRX was moderated by heavy water but cooled by light water. It used natural metal uranium as fuel and was for a time the most powerful research reactor in the world. NRX was in operation between 1947 to 1993, and suffered a partial meltdown accident in 1952, which led to a substantial development in reactor safety.

In this poster we are comparing the CANDU and NRX designs and discuss how the fuel handling and operation differ. The results of our simulations allow comparison of parameters such as plutonium production, the plutonium vector, throughput, and can be used for further work to assess the production at military reactors of an unknown design. The objective of this work is to gain a better estimate of the plutonium production at the reactors at Khushab in Pakistan.

*Evaluating nuclear proliferation implications on the use of minor actinides fuel for waste transmutation through material attractiveness analysis*

**Dr. Débora Trombetta**, Researcher, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4

Co-authors: **Dr. Erik Branger**, Researcher, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4; **Dr. Sophie Grape**, Associate Professor in applied nuclear physics, Department of Physics and Astronomy, Uppsala University and leader of AMC’s Working Group 4; **Dr. Markus Preston**, Researcher, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4

Transmutation of nuclear waste is considered an effective way to decrease heat and radiotoxicity through the transformation of nuclides, such as plutonium (Pu) and Minor Actinides (MAs) into stable and short lived nuclides. In order to perform transmutation, nuclear spent fuel needs to be reprocessed and Pu and MAs need to be separated from waste products in a process often referred to as partitioning. The separated products may then be incorporated in fresh fuel to be inserted in a reactor again. Partitioning and transmutation processes raise proliferation concerns, because separated products may become available and thus very attractive to be used in a nuclear explosive device or a nuclear weapon. The present work evaluates proliferation implications on the use of MAs fuel - (Np,Am)N - for waste transmutation in a lead cooled fast reactor. The evaluation is expanded to activities to both vertical (by state actors) and horizontal (by non-state actors and terrorist groups) proliferation, and will be based on material attractiveness. Monte Carlo simulations to estimate parameters related to the attractiveness level of the materials, which can be related to the “value” of it (ex.: type, form, critical mass, etc.) and the barriers the specific material offers against its use (ex.: decay heat, dose rate, etc.).

*IPNDV disarmament verification exercise: in perspective of AMC WG4 participation*

**Dr. Débora Trombetta**, Researcher, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4

Co-authors: **Dr. Erik Branger**, Researcher, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4; **Dr. Alf Göök**, Researcher, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4; **Dr. Peter Andersson**, Researcher, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4; **Dr. Sophie Grape**, Associate Professor in applied nuclear physics, Department of Physics and Astronomy, Uppsala University and leader of AMC’s Working Group 4; **Dr. Cecilia Gustavsson**, Associate Professor, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4; **Vaibhav Mishra**, PhD student, Department of Physics and Astronomy, Uppsala University; **Dr. Markus Preston**, Researcher, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4

The Belgian Nuclear Research Center (SCK CEN) is organizing an international exercise with the aim of testing technologies and procedures under the International Partnership for Nuclear Disarmament Verification (IPNDV) objective, of identifying effective verification options. A first edition of this measurement campaign was performed at the end of 2019. The main goal was testing and comparing the performance of the different techniques (using gammas and neutron detectors), on its capability to verify the presence or absence of nuclear material, with characteristics equivalent to nuclear weapons material. The second edition of the exercise will introduce more realism to the measurements. The participants will have no information about the material to be assayed or its geometrical configuration, matching the foreseen situation in a disarmament verification. Twelve teams will take part in the exercise, which will be held during September 2023 at SCK CEN, Belgium. The AMC Working Group 4, named “Technical Nuclear Non-Proliferation and Safeguards”, composes the team representing Sweden in the measurement campaign. The methodology to be used in the exercise, by the AMC team, is the detection of fast neutrons. The possibility of measuring fast neutrons may provide complementary capabilities for the weapon verification procedure, such as the distinction between spontaneous fission sources and (alpha,n) sources of neutrons. This work presents more details on the IPNDV context and its connection to the particular exercise. It also presents the preparatory work involved for the measurement campaign, including the characterisation of the detector to be used by the AMC group.

*Retrieving information about the Ågesta reactor in Sweden*

**Dr. Sophie Grape**, Associate Professor in applied nuclear physics, Department of Physics and Astronomy, Uppsala University and leader of AMC’s Working Group 4

Co-authors: **Dr. Erik Branger**, Researcher, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4; **Dr. Cecilia Gustavsson**, Associate Professor, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4

The “Swedish line” was an ambitious program in the 1950s-1960s aiming to make Sweden self-sufficient with respect to nuclear technology. The plan was to combine civil power production with military plutonium production, should Sweden decide to develop nuclear weapons. The program included, among other things, domestic uranium mining, domestic uranium fuel production, operation of heavy-water reactors and a plutonium laboratory.

The Ågesta nuclear power plant just outside Stockholm was part of the program. The reactor, also known as R3/Adam, was in operation in 1964-1974. The reactor was an underground, heavy-water cooled and heavy-water moderated pressurized reactor, providing district heat and a modest amount of electricity to the near-by suburb Farsta. After being closed down, the heavy water was sold to Canada while the fuel and some other equipment were removed. Large parts of the facility were preserved for several decades, but are now undergoing decommissioning, a process which is planned to be finalised in 2025.

Within this project we are investigating how to locate and reconstruct historic information on the operation of the Ågesta reactor. Of particular interest is the nuclear fuel and its irradiation history in the reactor. There are many reasons for this: i) information and knowledge management about the operation of a nuclear facility under the “Swedish line”, ii) for assessments regarding the produced plutonium qualities and quantities and iii) for nuclear safeguards verification of Ågesta fuel before encapsulation and final storage. For operating reactors, information about the fuel and its irradiation in the reactor is typically kept with the operator and follows the fuel as it undergoes transport and spent fuel management. In this case, the information is not straightforward to access, as the information has been distributed among multiple actors, and because custody of various parts of the information has changed over time. In this poster we will describe efforts to retrieve the detailed technical information, results thereof, and the plans for using it to support research related to the topics mentioned above.

*Visualisations of a new estimate of the North Korean fissile material inventory*

**Hailey Wingo**, Research Assistant, VERTIC

Co-author: **Dr. Grant Christopher**, Programme Director, VERTIC

The North Korean nuclear programme has remained a major challenge for the international community for nearly four decades. Knowledge of the full extent of North Korea’s fissile material inventory and associated production facilities will be valuable for any potential future disarmament process. At present, much is known about North Korean nuclear capabilities and facilities in open sources. What remains most uncertain is the extent of the gas centrifuge enrichment programme and the resulting cumulative fissile material stockpile. This poster presents visualised model inputs, results, and analysis for a new estimate of the North Korean fissile material inventory. This estimate is based on inputs from open sources and modelled using the UK National Nuclear Laboratory’s Orion software.

*Radionuclide monitoring with coincidence gamma-ray spectroscopy*

**Dr. Peter Andersson**, Researcher, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4

Co-authors: **Dr. Alf Göök**, Researcher, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4; **Dr. Volodymyr Khotyayintsev**, Visiting Researcher, Department of Physics and Astronomy, Uppsala University; **Dr. Olena Khotiaintseva**, Visiting Researcher, Department of Physics and Astronomy, Uppsala University; **Vikram Rathore**, PhD student, Department of Physics and Astronomy, Uppsala University; **Dr. Cecilia Gustavsson**, Associate Professor, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4; **Dr. Sophie Grape**, Associate Professor in applied nuclear physics, Department of Physics and Astronomy, Uppsala University and leader of AMC’s Working Group 4; **Dr. Erik Branger**, Researcher, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4; **Vaibhav Mishra**, PhD student, Department of Physics and Astronomy, Uppsala University

A significant fraction of the energy released in a nuclear explosion is delayed radiation, which allows for the verification of a nuclear test ban by detection of the residual decays of airborne radionuclides. For this purpose, High Purity Germanium (HPGe) detectors are workhorses in radionuclide monitoring performed in the International Monitoring System (IMS). The detection of characteristic gamma rays of signature radionuclides can be used to disclose that a nuclear weapon test took place, and for determination of place and time of the detonation. A development that has the potential to improve the sensitivity of radionuclide monitoring is the coincidence technique, where decaying nuclides that emit several coincident gamma rays can be detected at much smaller activity concentrations than with conventional gamma spectroscopy. In this project, dedicated gamma-gamma coincidence detectors are being developed, utilizing electronically segmented HPGe detectors. These detectors are expected to be highly sensitive to low-activity samples of nuclides that present coincident emissions of gamma rays. We are investigating, using the Monte-Carlo method, the detection efficiency of relevant signature nuclides, and the minimum detectable activity (MDA) that can be achieved with state-of-the-art segmented HPGe detectors of varying sizes and segmentation patterns. A dedicated code has been developed that models both the gammaray cascade decays and the physics of the gamma-ray interaction in the detector, as well as the background due to cosmic rays. In this poster we will present results of this investigation and compare the gain in MDA to conventional systems.

*Teaching about ethics and nuclear weapons to university students*

**Dr. Curtis Asplund**, Assistant professor, Physics & Astronomy, San José State University; and

**Dr. Brianne Gutmann**, Assistant professor, Physics & Astronomy, San José State University

In two different course contexts, we have talked with physics students about the history and current policies of nuclear weapons and technologies. Within a modern physics course, we taught the history of The Manhattan Project and the role of physicists in developing and advocating for policy around nuclear weapons in the United States. Likewise, in a course focused specifically on public policy, ”Physics & Public Policy,” we teach students about the role of physicists in creating and reforming public policies, including nuclear weapons policies. In both these contexts, we specifically teach ethical frameworks and how they may be applied to policy questions. For many students, it is their first exposure to ethical theory and to thinking critically about the role of scientists in society. In this poster, we present our teaching methods and results and discuss possibilities for exposing more students to ethical and societal thinking, which is important for engaging in many pressing global issues, including increased nuclear threats.

*Non-Proliferation Sanctions and Trump’s Maximum Pressure on DPRK: Explaining the Shift in China’s Enforcement*

**Dr. Ferdinand Arslanian**, Research Fellow, University of St Andrews

Trump’s maximum pressure campaign on DPRK represented an enforcement mechanism for UNSC’s non-proliferation sanctions following their intensification in 2016/2017. China, DPRK’s key economic partner, initially enforced these sanctions in an unprecedented manner only to reverse the trend later. This paper seeks to explain the shift in China’s enforcement throughout Trump’s Administration. Drawing from Martin’s (1992) “Coercive Cooperation”, a theoretical framework is developed where the secondary sender’s enforcement is determined by the level of interest alignment between the primary and the secondary senders, the issue linkages between them and the primary sender’s sanctions’ intensity. The paper finds that China’s initial strong enforcement is explained by the combination of China’s interest alignment with the US, due to the threat from the increase in DPRK’s nuclear capabilities, and the US’s intense resort to secondary sanctions. Nevertheless, the US-DPRK “summit diplomacy” led to a divergence of interest as it raised China’s fear of a regional strategic re-alignment while simultaneously curbing DPRK’s nuclear program. Combined with the curtailing of the US’s sanctions intensity and the emergence of US-Chinese trade war, as an antagonistic and implicit issue linkage, these factors paved the way towards reversing China’s enforcement level.

*Methodology for multi-parameter evaluation of minor actinide material attractiveness*

**Dr. Markus Preston**, Researcher, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4

Co-authors: **Dr. Erik Branger**, Researcher, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4; **Dr. Sophie Grape**, Associate Professor in applied nuclear physics, Department of Physics and Astronomy, Uppsala University and leader of AMC’s Working Group 4; **Vaibhav Mishra**, PhD student, Department of Physics and Astronomy, Uppsala University; **Dr. Débora Trombetta**, Researcher, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4

Countries with currently or previously operating nuclear reactors eventually face the issue of long-term radioactive waste management. Various concepts for closing the nuclear fuel cycle are under development but not yet widely adopted on a commercial scale. Recycling minor actinides, typically neptunium, americium and curium, would significantly reduce the long-term radiotoxicity and heat generation in a final waste repository, which could improve the long-term safety of the repository. These materials are not covered by international nuclear safeguards, but could potentially be useful for making a nuclear explosive device. There exist methods using one or more figure-of-merit to quantify material attractiveness in the context of non-proliferation and safeguards. Although a figureof-merit allows comparison between different materials, there are also some limitations with using it. Within the Alva Myrdal Centre at Uppsala University, work has been carried out to develop a methodology for multi-parameter evaluation of material attractiveness. This methodology aims to present the impact of several factors describing material availability, handling and weapon assembly in a transparent way. In this work, this methodology is applied to neptunium, americium and curium produced in a generic light water reactor. The results are compared with those from using an existing figure-of-merit approach.

11:00 – 12:30 | Lecture hall X, 1st floor

**Session 1A: *From Alva Myrdal to the NATO Application: Have Critical Perspectives Disappeared?***

Chair: Dr. Brian Palmer, Associate Professor, Uppsala University

Co-organiser: Siri Jansson, Bachelor student, Uppsala University

When Alva Myrdal shared the 1982 Nobel Peace Prize with Mexico’s Alfonso García Robles, she said in her acceptance speech, ”I am particularly gratified that on this occasion the award goes to two citizens of nations which are both denuclearised and non-allied.” Nations, she added, that have ”refused to serve as hostages to the superpowers.” She went on to quote a description of the U.S.-Soviet nuclear arms race as ”idiots racing against imbeciles.” Fast-forward forty years to Sweden’s truncated debate about joining the U.S.-led military alliance. High-level dissenting voices like Alva Myrdal’s are almost absent. The following January, 2023, journalists covering the influential Folk och försvar gathering in Sälen report an unchallenged consensus of participants around U.S./NATO positions and worldviews. Have critical perspectives disappeared from the public conversation in Sweden? If so, how and why did this happen? The roundtable explores such questions by drawing upon expertise from political science, history, anthropology, military studies and civil society.

Panellists: **Lina Hjärtström**, Policy and Advocacy Director, Women’s International League for Peace and Freedom (WILPF) Sweden;

**Dr. Thomas Jonter**, Professor, Department of Economic History and International Relations, Stockholm university;

**Josefin Lind**, Secretary General, Swedish Physicians against Nuclear Weapons;

**Dr. Emma Rosengren,** Researcher in international relations, Department of Economic History and International Relations, Stockholm university

**Dr. Joakim Palme**, Professor, Department of Government, Uppsala University

11:00 – 12:30 | Lecture hall IX, 1st floor

**Session 1B: *Fake news: Disinformation and setting the record straight [[2]](#footnote-2)***

Chair: Dr. Jo-Ansie van Wyk, Professor of International Politics, Department of Political Sciences, University of South Africa

*Cold Shoulder: An Intellectual History of Nuclear Winter*

**Dr. Kjølv Egeland**, Postdoctoral Fellow, Sciences Po

“Nuclear winter” became big news in 1983 when a group of accomplished researchers concluded that nuclear war would have devastating, worldwide climate impacts. This finding seemed in theory to necessitate a fundamental rethinking of nuclear policy, but in practice the nuclear winter debate largely reinforced existing views. And although scientists have subsequently corroborated and refined the science of nuclear winter, the concept has in recent years and decades routinely been referred to as “fake news”, a “myth”, a “fandango”, or “fantasy” in mainstream media. How did this happen? How was the science of nuclear winter effectively dismissed? This article proceeds in two steps. In the first part, I use quantitative indicators to trace the nuclear-winter concept’s life cycle in mainstream media, policy analysis, and UN discourse. In the second part, I investigate the material and institutional structures in which the nuclear winter debate took place, showing how the political economy of nuclear policy expertise stacked the odds against those seeking discursive and political change. Drawing on the scholarship on agnotology, I maintain that ignorance of the climatic consequences of nuclear war should be understood as the result of a willed process of obfuscation orchestrated by special interests.

*Debunking Ten Myths about South Africa’s Nuclear Weapons Programme*

**Noel Stott,** Senior Researcher, Verification Research, Training and Information Centre

(VERTIC)

Ever since former South African president F.W.de Klerk announced on 24th March 2023 that the country had embarked on a programme to develop nuclear weapons and that the programme and the nuclear devices themselves had been dismantled, the arms control and nuclear non-proliferation community have attempted to draw lessons. Such lessons serve to illustrate general proliferation concerns currently facing the world, in particular, whether the South African process could serve as a rollback model for North Korea. Many analysts have also focused, inter alia, on possible reasons why such a programme was embarked on; whether any device was tested (the 22 September 1979 Vela Incident); whether South Africa received external assistance as well as, for example, why, just prior to the holding of the country’s first democratic elections in May 1994, which brought in a new political dispensation, was it terminated. In the course of such research and analysis, a number of myths have been created; tentative hypotheses have been transformed into enduring myths. It is important to interrogate these as perhaps one of the most important lessons from the South African case is how to prevent or mitigate against falsehoods arising in other disarmament contexts. This paper explores these myths as weak analyses undermines evidence-based knowledge of nuclear weapon programmes, and perhaps more importantly, the necessary confidence within the international community that the disarmament process and its verification would prevent the re-emergence of a nuclear weapons programme.

*Nuclear becoming unclear: Avoiding disinformation by using inclusive information communication and presentation*

**Kristiana Nitisa**, Engagement and Research Assistant, Open Nuclear Network

Many experts believe the risk of nuclear war today is the highest it has been in decades. Nevertheless, the general public lacks sufficient understanding of nuclear risks, ultimately contributing to poor public policy and heightened nuclear risk. As the volume, velocity, and variety of information around the world expand, and as traditional information gatekeepers have often been replaced by unreliable news sources and social media, the communication flow between the nuclear science and policy communities and the public has broken down. The result is a growing gap between information communication formats that would effectively explain complex information to the public and the current methods of communicating nuclear risks using dense and lengthy technical language and presentations. Nefarious actors can take advantage of the challenged information environment by spreading disinformation. To empower the general public to engage with these highly technical issues, nuclear science and policy, and communities must start employing appropriate communication tools and strategies that can break through the confusion and disinformation. This paper will seek to provide an assessment of the present lack of approachable information communication strategies and will then offer recommendations on how to communicate complex nuclear-related technical issues to the broader public more effectively.

11:00 – 12:30 | Lecture hall IV, ground floor

**Session** **1C: *Nuclear security and nuclear regulations [[3]](#footnote-3)***

Chair: Dr. Stephen Herzog, Senior Researcher in Nuclear Arms Control at the Center for Security Studies (CSS), ETH Zurich and associate of Harvard University's Project on Managing the Atom; and member of AMC’s Working Group 1

*Nuclear Security During Armed Conflict*

**Ali Alkış**, Phd Candidate, Hacettepe University

Responsibility for nuclear security rests entirely with a state while the international nuclear security regime not only helps states reinforce national regimes but also guides other states to achieve and implement the minimum standards. However, nuclear security during an armed conflict needs further international attention as the consequences would be beyond the parties involved in the conflict. There is, on one hand, GC(53)/DEC/13 adopted by the IAEA in 2009 which states any armed attack is against the principles of the UN Charter, international law, and the Statute of the Agency. On the other hand, there is Article 56 of Additional Protocol I of the Geneva Conventions, which prohibits attacks on nuclear electrical generating stations, even if they constitute a lawful military target.

However, these international instruments have implementation challenges. Thus, the current crisis as well as the increasing number of nuclear power states in the recent future, including the ones located in regions prone to armed conflict, hostilities, civil war, or insurrection, need a strong international framework to address nuclear security challenges, including those posed by state actors, including preventing where possible and otherwise managing war-time threats. As such threats to nuclear facilities might lead to nuclear incidents, resulting in radiological consequences beyond national borders, they must be recognized as real and global challenges. In due time, there will be a review of lessons learned from the current crisis in Ukraine that might help prepare for and respond to future similar events.

Discussant: Dr. Masako Ikegami, Professor, School of Environment and Society, Tokyo Institute of Technology

*What a future LAWS regulation could learn from the nuclear legal regime*

**Veerle Moyson**, Consultant - Project and Research Coordinator, United Nations Office for Disarmament Affairs

The international regulation of autonomous weapon systems (LAWS) has been and continues to be the subject of debate. So far, efforts to achieve a potential international normative framework have been channelled through informal talks and meetings of the Group of Governmental Experts, with its 11 guiding principles being the sole providers of direction on this issue. As technology advances and states continue to develop lethal systems that are independent of human control, the international legal regime for nuclear weapons may offer some pointers to promote the adoption of a normative framework for LAWS as they feature a number of similarities. The difficulty of anticipating and restricting their effects, the impact of their use on IHL, or the high degree of technicality and investment required for their development are some of the shared characteristics by these two types of weapons. Although there is criticism of the current state of the nuclear regime, this long-standing area of regulation has succeeded in limiting the number of nuclear weapons and their possessors. Thus, by assessing the main strengths and shortcomings of the nuclear regime, this paper identifies what a future LAWS regulation could learn from it to improve and ensure international security.

Discussant: Dr. Masako Ikegami, Professor, School of Environment and Society, Tokyo Institute of Technology

*‘Atoms for Peace’ or Bulwark for the Bomb?: A Critical Examination of States’ Patronage for Nuclear Power and Implications for Disarmament Strategies*

**Sunil Tamminaina**, PhD Student, Jawaharlal Nehru University

Despite weak performance on operational and economic fronts, nuclear power continues to be a sizable part of energy calculations in many countries. Following an examination of the reasons behind such endurance, focusing on how wider set of technical and process interdependencies from a civilian nuclear programme are crucial to build and/or sustain a nuclear weapons programme, this paper seeks to critically interrogate the traditionally understood binary of civilian and military usages of nuclear energy. It highlights the relative marginalisation of strategies that account for these close linkages and the motivations of the States in the broader advocacy for disarmament. Even the International Atomic Energy Agency, the global nuclear watchdog which has had some successes on the non-proliferation front, has promotion of nuclear power as one of its key objectives, which could potentially jeopardise the realisation of the preconditions for disarmament. Finally, this paper attempts to assess the case of the civilian nuclear programme in India in this light, with the Indo-US nuclear deal and the persistence with the plans in pursuit of the three-stage nuclear power programme despite many decades of shortcomings as some key anchoring points.

Discussant: Dr. Sophie Kretzschmar, Postdoctoral Researcher, Nuclear Verification and Disarmament, RWTH Aachen University

*A freeze on tritium production for nuclear weapons has an immediate positive impact on disarmament*

**Robert E. Kelley**, Distinguished Associate Fellow, SIPRI

The Treaty on the Prohibition of Nuclear Weapons has been agreed and adopted.  There are many paths forward.  One option that could make an immediate effect on active nuclear weapons is to cut off the supply of military radioactive tritium gas used to “boost” most strategic weapons.  Without tritium, the bombs rapidly and suddenly lose their ability to explode as designed and they become duds.  Tritium is a radioactive material that decays rather quickly and must be continuously produced and resupplied to active weapons.

Blocking the production of tritium for military purposes has a much more immediate effect than the proposed Fissile Material Cutoff Treaty (FMCT). Adoption of this stalled FMCT would not remove a single weapon from military stockpiles.  But new tritium must be continuously produced to keep weapons functioning and every day that there is no new tritium the stockpile will be squeezed down.  Declining stocks of tritium would need to be constantly redistributed across fewer and fewer weapons, a positive, measurable disarmament step.

Tritium is an essential component in most nuclear weapons today. Yet, tritium is not a nuclear material under international definitions. It is regulated because of its radiation-related health hazards but not as a nuclear proliferation material.

Discussant: Dr. Sophie Kretzschmar, Postdoctoral Researcher, Nuclear Verification and Disarmament, RWTH Aachen University

13:30 – 15:00 | Lecture hall X, 1st floor

**Session 2A: *Developments in Open Source Intelligence (OSINT): Opportunities and challenges [[4]](#footnote-4)***

Chair: Dr. Cecilia Gustavsson, Associate Professor, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4

**Matt Korda**, Senior Research Associate, Federation of American Scientists

It is perfectly reasonable for countries to want to keep certain information about nuclear weapons secret, particularly those details about how to build or access them. However, not all information about countries’ nuclear weapons should be kept secret. And in recent years, nuclear-armed states have increasingly––and unnecessarily––withheld critical details about their nuclear arsenals from their publics, allies, and adversaries. As a result of this ever-worsening environment for transparency, collecting open-source information about nuclear arsenals is more important than ever. This presentation demonstrates how open source research can be used to establish the details of global nuclear weapons stockpiles, and highlights the challenges inherent to this type of work. Overall, this presentation explores OSINT’s role in the information collection ecosystem: not as a replacement for traditional national intelligence collection methods, but rather as a complementary source of information to boost transparency with the public, build trust with adversaries, and improve governmental coordination and efficiency on verification.

*Effects of Open Source Satellite Imagery on Nuclear Verification*

**Dr. Alexander Bollfrass**, Senior Researcher at the Center for Security Studies (CSS), ETH Zurich and member of AMC’s Working Group 1

Co-author: **Dr. Stephen Herzog**, Senior Researcher in Nuclear Arms Control at the Center for Security Studies (CSS), ETH Zurich and associate of Harvard University's Project on Managing the Atom; and member of AMC’s Working Group 1

High-resolution commercial satellite imagery has become increasingly available in recent years. This has enabled researchers to uncover headline-grabbing facts about states’ nuclear programs, those once reserved for the intelligence agencies of nation-states. Yet, scholars still lack a clear understanding of how open source satellite data may influence the dynamics of nuclear politics. We explore how the democratization of satellite outputs may reshape nuclear crisis management and verification of arms control, disarmament, and nonproliferation. Our paper identifies key gaps in the international relations literature and lays out five theoretical mechanisms underlying such developments. Overall, we find that commercial satellite data can both complement and supplement national technical means. Historical cases reveal that the comparatively less sensitive nature of open sources can position these data at the forefront of crisis bargaining and treaty compliance discussions. The net effect, however, need not promote nuclear cooperation. States must now grapple with the risks inherent in deepfake satellite imagery and the wider accessibility of military targeting information.

*Finding the limits of open-source analysis to uncover clandestine facilities*

**Dr. Grant Christopher**, Programme Director, VERTIC

Open-source investigations have demonstrated remarkable results by identifying and informing analysis of nuclear-related facilities. Satellite imagery, combined with other methods such as media monitoring and technical literature analysis, has demonstrated the ability to consistently provide new insights into known facilities. In some rare instances, these analyses have been able to uncover clandestine facilities. The limitations and expected sensitivity of these methods to identify clandestine facilities is not well understood. We provide an overview of integrated open-source analyses to analyse nuclear-related facilities and discuss tools and emerging techniques for identifying clandestine nuclear facilities. Moreover, we will evaluate the potential limits of these tools: I.e., with current and emerging capabilities which kinds of facility would we expect to be able to identify and with what confidence; particularly in the case of North Korea.

13:30 – 15:00 | Lecture hall IX, 1st floor

**Session 2B: *Nuclear disarmament and the utility of sanctions [[5]](#footnote-5)***

Chair: Dr. Armend Bekaj, Researcher, Department of Peace and Conflict Research, Uppsala University and member of AMC’s Working Group 2

*Liberation movements and nuclear disarmament: The case of the African National Congress and apartheid South Africa*

**Dr. Jo-Ansie van Wyk,** Professor of International Politics, Department of Political Sciences, University of South Africa and member of AMC’s Working Group 2

The African National Congress (ANC) was the leading organisation in the anti-apartheid movement in South Africa. Since it was banned and went into exile in the 1960s, the organisation internationalised the anti-apartheid struggle through various means. One example was the organisation’s international campaign against the apartheid South African government’s officially secret, but suspected, nuclear weapons programme and nuclear weapons. Supported by the United Nations, individual states and other international organisations, the ANC promoted its liberation struggle as a human rights issue and an antinuclear weapons struggle. Whereas apartheid South Africa’s nuclear weapons programme, sanctions busting and nuclear disarmament process has received scholarly attention as a proliferation and disarmament case study, the role of the liberation movement, especially that of the ANC, has been neglected. Besides filling an important gap in the history of nuclear disarmament, the ANC case highlights the importance of civil society, especially in undemocratic and nuclear weapons states, in a state’s nuclear choices. Moreover, the case illustrates avenues and instruments available for such organisations, albeit from a historical position. In addition to this, the case also reiterates the importance of the link between democratic movements and the international community to apply punitive sanctions, embargoes and isolating measures against a proliferating state. Following a historical constructivist approach the study presents the context of apartheid South Africa’s nuclear ambitions and the response by the country’s liberation movement. Thereafter, it analyses the ANC’s philosophical and ideological position on nuclear disarmament as a human rights issue. In the third section of the presentation, the ANC’s internationalisation of its anti-nuclear campaign is analysed and assessed. Finally, the presentation concludes with an assessment of the case and its instructive lessons for nuclear disarmament.

*Brazil and Latin America - a tradition of disarmament and non-proliferation vis-à-vis sanctions*

**Dr. Gilberto M A Rodrigues**, Associate professor, Federal University of ABC and member of AMC’s Working Group 2

This presentation aims to discuss how Brazil and Latin America have been acting at the mulltilateral level regarding sanctions on disarmament and non-proliferation.

*Framing the Middle-Power Trap: How Nonproliferation Regime Hampered the Aspirations of Emerging Powers*

**João Paulo Nicolini Gabriel**, Ph.D. Student, Catholic University of Louvain

The recent employment of sociological approaches to understanding the social dynamics that underpin the nonproliferation regime can provide valuable insights into debates over the status-seeking behavior of emerging powers. Aspiring to unlock this potential theoretical contribution, this article frames a systemic-level causal mechanism called the Middle Power Trap (MPT) based upon sociological understandings of how great powers gain legitimacy to preserve the nonproliferation regime from deviant behaviors. By applying this theoretical perspective, our hypothesis is the MPT represents the instruments that the great powers employ to make other countries emulate the diplomatic behavior of traditional middle powers - countries that abide by rules and seek reputational assets. Since emerging powers have historically challenged nonproliferation rules, the MPT consists of the causal forces that hamper them from attaining the similar level of technological development observed in great powers. Employing process tracing as a method, we undertake a case study about the negotiation of the nuclear nonproliferation regime during the Cold War to understand the origins of the MPT. We reviewed 2,195 primary sources retrieved from the United Nations online library. After that, we undertake two case studies about the nuclear history of Brazil and India to demonstrate that the Middle Power Trap provides a better critical grasp of normative and material systems of pressure triggered by great powers.

*Using Sanctions Relief to Facilitate Negotiations: Challenges of Calibration, Communication, Coordination, and Credibility*

**Dr. Thomas Biersteker**, Professor, Geneva Graduate Institute and member of AMC’s Working Group 2

Most research and discussion of sanctions focuses on their purposes, their design, their implementation, their impacts, their unintended consequences, and their effectiveness. Much less attention has been devoted to how sanctions end. Attia and Grauvogel have identified the overlooked importance of sanctions termination in their recent research, but even less attention has been devoted to the analysis of how sanctions relief might be utilized to facilitate negotiated settlements of conflicts. Building on recent research on sanctions and mediation, this paper presents a menu of possible sanctions relief measures that could be employed by negotiators, including in negotiations over nuclear proliferation. Depending on the sanctions regime, there can be a great many options for negotiators to choose from, but sanctions relief is not easy. The paper concludes with a discussion of the difficult challenges of attempting to use sanctions relief to facilitate negotiations: the challenges of calibrating offers of sanctions relief, communicating their content, coordinating relief within governments and among multiple sanctions senders, and making credible commitments of sanctions relief that often entail cooperation from the private sector.

13:30 – 15:00 | Lecture hall IV, ground floor

**Session 2C: Dealing with the nuclear past: The role of the Global South in decolonizing nuclear knowledge**

Chair: Marzhan Nurzhan, PhD Candidate, University of Basel

In the second half of the XX century, lands of the Indigenous people in the Global South served as a primary arena where most of the nuclear explosions took place. The majority of global nuclear weapons testing was carried out by superpowers in their then colonised or occupied territories. These areas of test sites were chosen remote from their respective nuclear colonizing powers which changed the ecosystem and lives of local people forever.

This roundtable event is aimed to address the following themes by: - reflecting on the nuclear past through decolonial lens; - critically analysing official narratives and discourses around the nuclear past from the Global South perspectives; - providing a forum for exchange of the agents carrying/transferring local knowledge and experiences.

Panellists: **Dr. Leila Hennaoui**, Associate Professor at Hassiba Ben Bouali University;

**Aigerim Seitenova**, Independent consultant, Kazakhstan

**Lovely Umayam**, Founder & Creative Producer, The Bombshelltoe Policy x Arts Collective

**Dr. Olamide Samuel,** Research Associate in Nuclear Politics, University of Leicester

13:30 – 15:00 | Lecture hall XI, 1st floor

**Session 2D: *Implementing the positive obligations of the TPNW [[6]](#footnote-6)***

Chair: Dr. Wilfred Wan, Director of the Weapons of Mass Destruction Programme, Stockholm International Peace Research Institute (SIPRI) and co-leader of AMC’s Working Group 5

*Gender and victims assistance: applying a gender lens to victims assistance implementation – with examination of positive obligations application in two Pacific Island nuclear test countries*

**Dr. Vanessa Griffen,**Co-organiser, Pacific Islands Caucus on Nuclear Issues

An overview of gender and whether it is used or not in victims assistance programs, is then applied to examine victims assistance responses and programs, existing and future, in two nuclear testing countries, Marshall Islands and Moahi Nui (French Polynesia). With the Vienna Action Plan beginning implementation, suggestions and recommendations will be made on how a gender analysis of on- the- ground conditions and in consultations with affected communities, could ensure better outcomes and also, better participation in TPNW positive obligations implementation by affected communities’ representatives. Applying gender in policy and programs for victims assistance, could help not only in better outcomes and use of victims assistance funding, and distribution of resources, but result in greater inclusivity and participation of women and health care providers, in discussions on victims assistance needs in affected communities.

Acknowledging gender could be a promising direction with practical gains to be made in victims assistance implementation. The paper will focus on gender and social, health, medical and community impacts of nuclear testing over decades, in two Pacific nuclear test countries.

*Intersectional Implementation of the TPNW*

**Ray Acheson,** Director, Reaching Critical Will

Nuclear weapons are gendered. They have gendered impacts; their existence is predicated on and perpetuated in part due to gendered norms about power, violence, and security; and their abolition is challenged by the lack of gender and other forms of diversity in discussions and negotiations related to nuclear policy. In recent years, the Treaty on the Prohibition of Nuclear Weapons (TPNW) has done some work to address these issues, but more is needed to advance gender transformative and intersectional approaches to nuclear weapons, which is an imperative for achieving nuclear abolition. This paper provides some context for these issues, outlines what is in the TPNW and its current Action Plan, and offers recommendations for states parties and others to consider ahead of the Second Meeting of States Parties (2MSP), to be held in November 2023. It urges states parties and civil society to provide space for the discussion and application of feminist, queer, antiracist, and anti-imperialist theory and practice within the nuclear weapon discourse, and to help guide TPNW implementation.

*The Treaty on the Prohibition of Nuclear Weapons and the inclusion of affected populations*

**Alicia Sanders-Zakre,** Policy and Research Coordinator, ICAN

The 2017 Treaty on the Prohibition of Nuclear Weapons is the first nuclear weapons treaty to explicitly mention categories of people harmed or at risk of harm by nuclear weapons; in this context, it refers to women and girls, victims of the use of nuclear weapons and those affected by the testing of nuclear weapons, and Indigenous Peoples. This article will outline how the TPNW came to formalize categories of affected populations in its treaty making process, and the subsequent efforts to enable these populations to be agents rather than subjects in TPNW implementation. To provide recommendations for further advancing inclusion of marginalized affected peoples within the TPNW and in other nuclear weapons diplomatic and policy processes, the article also will explore efforts to include affected populations in other institutions, including climate change policy, Indigenous rights and food security policy processes.

15:30 – 17:00 | Lecture hall X, 1st floor

**Session 3A: *NATO and the Nordic state perspective [[7]](#footnote-7)***

Chair: Jennifer Erickson, Associate professor, Boston College and member of AMC’s Working Group 6

*Advocating nuclear disarmament as NATO members – lessons from the past and possible routes ahead for Finland and Sweden*

**Dr. Thomas Jonter,** Professor, Department of Economic History and International Relations, Stockholm university and member of AMC’s Working Group 6;

**Dr. Emma Rosengren**, Researcher, Department of Economic History and International Relations, Stockholm university and member of AMC’s Working Group 6

In the aftermath of Russia’s full-scale military invasion of Ukraine in February 2022, Finland and Sweden applied for membership in NATO. This constitutes the most fundamental security shift in the Baltic Sea region since the end of the Cold War. In joining an alliance reliant on nuclear weapons, some have argued that Finland and Sweden will be unable to pursue nuclear disarmament advocacy, a historical legacy in both countries, in the future. How did the shift come about, and what are the possibilities for Finland and Sweden to contribute to nuclear disarmament as members of NATO? This article initiates a conversation about what kind of NATO members Finland and Sweden can become, and how historical legacies in relation to nuclear disarmament advocacy can be advanced in the contemporary security setting. Drawing on historical analysis, we argue that while the Finnish and Swedish NATO decisions might appear as a sudden turn of events, a closer look at a longer time-period shows that they are, in fact, the continuity of a security policy path, which dates back to the mid-1990s. Furthermore, we put forward the argument that while nuclear disarmament was a central feature of Finnish and Swedish security policy during the Cold War, it diminished as a policy priority during the post-Cold War era, especially from 2009 and onwards. Reactivating nuclear disarmament as a policy priority would both contribute positively to security in the region, and establish continuity between past and present policy priorities.

15:30 – 17:00 | Lecture hall IX, 1st floor

**Session 3B: *Nuclear fuel cycle simulations [[8]](#footnote-8)***

Chair: Dr. Sophie Grape, Associate Professor in applied nuclear physics, Department of Physics and Astronomy, Uppsala University and leader of AMC’s Working Group 4

*Assessments of design and operational parameter sensitivity towards plutonium production in heavy water reactors*

**Dr. Cecilia Gustavsson**, Associate Professor, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4; and

**Isak Hedberg**, Bachelor student, Uppsala University

Co-authors: **Dr. Peter Andersson**, Researcher, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4; **Dr. Erik Branger**, Researcher, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4; **Dr. Sophie Grape**, Associate Professor in applied nuclear physics, Department of Physics and Astronomy, Uppsala University and leader of AMC’s Working Group 4; **Vaibhav Mishra**, PhD student, Department of Physics and Astronomy, Uppsala University; **Axel Hallander,** Bachelor student, Uppsala University**; Stina Fredriksson,** Bachelor student, Uppsala University

A majority of the nuclear reactors in the world use low-enriched uranium as fuel, and will produce plutonium during operation. This will happen when neutrons undergo capture in U238 instead of causing fission of U235, which is a likely reaction as low-enriched uranium is composed of > 95% U238. While the plutonium can be used as fuel in the reactor, it is also a material highly desired by states producing nuclear weapons. Not all reactors produce plutonium of the same grade, which significantly impacts its usability in a nuclear weapon. For this reason, certain reactor technologies have been favored for military plutonium production. Heavy-water moderated reactors is one such family, that has been used in current or defunct nuclear weapons programmes by states such as India, Pakistan, Sweden, Switzerland and the United States. A number of factors impact the rate and grade of plutonium production in a reactor. These include (but are not limited to) fuel design specifications (pellet radius, fuel density), operational temperature of the fuel as well as the coolant and moderator, and numerous other operational parameters such as specific power, cycle lengths and downtimes et cetera. The present study will look into investigating the relative sensitivity of plutonium production rate and grade towards these design and operational parameters. Based on the results from this evaluation, it is expected that we can better understand which parameters impact plutonium production quantity and quality the most. This will also help us understand the role and impact of uncertainties in these parameters and connect them to the plutonium content in the spent fuel produced by these reactors.

Discussant: Dr. Grant Christopher, Programme Director, VERTIC

*Reconstructing Fissile Material Production with Fuel Cycle Simulations*

**Max Schalz,** Research Associate, Nuclear Verification and Disarmament, RWTH Aachen University

Co-author: **Dr. Malte Göttsche**, Group Leader, Nuclear Verification and Disarmament, RWTH Aachen University

Future disarmament treaties need to include, amongst others, a verification mechanism for existing fissile material stockpiles, as determining correctness and completeness of the stockpiles is essential to prevent a break-out scenario. One approach to this is to reconstruct the fissile material production history using nuclear archaeology methods. Traditional nuclear archaeology focusses on one specific facility, e.g., a nuclear reactor, and reconstructs its operating parameters. We propose to extend this concept by using fuel cycle simulations to cover the whole nuclear program of a state. This has major advantages: It allows to determine both HEU and Pu production in parallel, we can potentially include information on inter-facility material transfers, and possible constraints such as uranium shortage are considered in the reconstruction process.

We developed Bicyclus, an open-source Python3 module that couples Cyclus, a nuclear fuel cycle simulator, with a Bayesian inference framework. The user models a fuel cycle in Cyclus and inputs both uncertain parameters, such as reactor burnup, and measurement data, such as isotopic ratios from nuclear waste. Then, the inference framework uses Markov Chain Monte Carlo methods to reconstruct the parameters. Specifically, it yields probability distributions for all parameters, which has the additional advantage that we can assess the uncertainties on the reconstructed parameters. We showcase the use of Bicyclus by reconstructing operational parameters and fissile material production of a benchmark fuel cycle. Furthermore, we demonstrate how the combination of measurement data taken at different points in the fuel cycle can significantly increase the reconstruction quality.

Discussant: Dr. Peter Andersson, Researcher, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4

*Nuclear verification research: bringing together social and natural sciences*

**Dr. Sophie Kretzschmar**, Postdoctoral Researcher, Nuclear Verification and Disarmament, RWTH

Aachen University

Verification is a key element of nuclear arms control, nonproliferation, and disarmament regimes. Because it is often understood as assessment of compliance through technical methods, discussions often focus on technical and legal aspects at the expense of soft factors, such as the role of trust or mutual perceptions of actors. Especially relevant, however, are questions that connect both perspectives: What technical measures help to build confidence in the other’s compliance? How does the mutual perception of actors affect which technology is deemed too intrusive or not transparent enough? How can confidence be built when information gaps persist? These questions are increasingly relevant in a global situation that is characterized by a deteriorating arms control architecture and growing mistrust, and they require joint effort across the disciplines. The project ”VeSPoTec verification in a complex and unpredictable world: Social, technical, and political processes” brings together researchers from the natural and social sciences to find such answers and develop new approaches for future nuclear verification challenges. This contribution will introduce the project and present first results. The project’s integrated-interdisciplinary approach will be demonstrated by assessing a verification scenario in which methods from nuclear archaeology are employed to verify a state’s fissile material declaration.

Discussant: Dr. Peter Andersson, Researcher, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4

*Assessing Pakistan’s fissile material production*

**Max Schalz,** Research Associate, Nuclear Verification and Disarmament, RWTH Aachen University;

**Dr. Cecilia Gustavsson**, Associate Professor, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4

Co-authors: **Dr. Erik Branger**, Researcher, Department of Physics and Astronomy, Uppsala University and member of AMC’s Working Group 4; **Dr. Sophie Grape**, Associate Professor in applied nuclear physics, Department of Physics and Astronomy, Uppsala University and leader of AMC’s Working Group 4; **Robert E. Kelley**, Distinguished Associate Fellow, SIPRI**; Dr. Malte Göttsche**, Group Leader, Nuclear Verification and Disarmament, RWTH Aachen University

Pakistan is a country with both civilian and military nuclear programs. While the civilian program relies on imported Chinese reactors and fuel, the military program is domestic and independent, and includes all parts of the nuclear fuel cycle. This means there is domestic mining of uranium, as well as indigenous enrichment facilities, fuel fabrication, military reactors and reprocessing facilities. Since the technology and facilities exist to produce both HEU weapons and plutonium weapons, there is a tradeoff between how much uranium is being used for feeding either path.

It has previously been reported that Pakistan has a natural uranium shortage, which could possibly constrain fissile material production. In the last decade, however, Pakistan built three new plutonium producing reactors at Khushab, as well as refurbished the reprocessing plant in Chashma. This contradicts the picture of a country with acute fuel shortage. The solution to this contradiction could be the use of advanced fuel cycles, where reprocessed uranium is reused in different configurations in order to produce more plutonium from the input of natural uranium. Such fuel cycles will however put boundary conditions on the use of the reprocessing, enrichment and fuel fabrication facilities in a way that affects the military nuclear fuel cycle.

We investigate different advanced nuclear fuel cycle scenarios that could be used by Pakistan, and model them using two simulation codes, Cyclus and Serpent 2. We analyse these scenarios to determine their practical feasibilities, efficiencies and to obtain new fissile material estimates. The results suggest that Pakistan can use its enrichment and reprocessing facilities in innovative ways to stretch its military plutonium supply. A complete understanding of capabilities is essential if nuclear disarmament becomes reality.

Discussant: Dr. Grant Christopher, Programme Director, VERTIC

15:30 – 17:00 | Lecture hall IV, ground floor

**Session 3C: *In the aftermath of the Russian invasion of Ukraine [[9]](#footnote-9)***

Chair: Dr. Magnus Öberg, Associate Professor, Department of Peace and Conflict Research, Uppsala University and co-leader of AMC’s Working Group 3

*The future of nuclear nonproliferation and disarmament: how Russia’s War on Ukraine has weakened the NPT regime?*

**Dr. Adérito Vicente**, Non-Resident Fellow, Odesa Center for Nonproliferation (OdCNP)

The Russian invasion of Ukraine, on February 24, 2022, led to a war between the two former republics of the Soviet Union. Moscow’s aggression marked a critical juncture and a deeply disturbing challenge to the current global nuclear order. It also deepened the breach in the 1994 Budapest Memorandum on Security Assurances, in which Kyiv committed to renunciate its Soviet-era inherited nuclear weapons in exchange for security assurances against the use of force that would potentially compromise Ukraine’s territorial integrity and political independence. This presentation focuses on comprehending the impact of Russia’s war on Ukraine on the nuclear nonproliferation and disarmament regime, and characterizes the kind of regime we face now. First, I analyze how this war weakened the 1968 Treaty on the Non-Proliteration of Nuclear Weapons (NPT) regime. Second, I explore the current challenging issues for the regime, at both multilateral and bilateral levels. Third, and ultimately, I examine why renewing the commitment to arms control, nonproliferation, and nuclear disarmament dialogue is important to assure the future and survival of the NPT regime.

Discussant: Dr. Matthew Fuhrmann, Professor of Political Science, Texas A&M University

*Impact of the Russian invasion of Ukraine on Nonproliferation*

**Dr. Valeriia Gergiieva,** Visiting Research Fellow, Institute for Peace Research and Security Policy (IFSH)

The Russian invasion of Ukraine creates new international challenges and uncertainties. One of them is the growing role of nuclear weapons, which, as Russia has demonstrated, can be used to shield conventional aggression. This tendency is directly related to the whole non-proliferation regime, as Russia’s example could prompt some states to rethink their non-nuclear weapons state status; both for deterrence and/or power projection purposes. The negotiating process has become even more complicated because of the mistrust of all international agreements, as Russia’s invasion has helped erode trust and demonstrated the political power of nuclear weapons. The fact that nuclear-armed Russia is attacking Ukraine; a country, which got rid of its Soviet-era nuclear weapons in exchange for guarantees of its territorial integrity, demonstrated the importance of deterrence. The Russian invasion of Ukraine and understanding of the political power of nuclear weapons strengthened Iranian belief in self-defense importance. As a result it has already affected the change of Iranian motivations. In this context, the threat of nuclear Iran is closer than ever; nevertheless, Iran is more profitable to maintain non-nuclear status and to continue its cooperation with Russia and China together with its missile technology improvement.

Discussant: Dr. Matthew Fuhrmann, Professor of Political Science, Texas A&M University

*Nuclear weapons and national restrictions in NATO: the cases of Denmark and Norway*

**Robin Sällström,** Master’s student, Uppsala University

In conjunction with the Swedish application for NATO membership, a debate has arisen concerning potential restrictions on the deployment of NATO nuclear weapons on Swedish territory. Generally, the Norwegian and Danish nuclear weapons restrictions in NATO have been used as an example of how Sweden could tackle this issue. Both the Norwegian and Danish restrictions were formulated during the late 1950s. The aim of these restrictions was to prevent the permanent deployment of nuclear weapons belonging to allied NATO countries on Danish and Norwegian soil in times of peace. However, these restrictions were also ambiguous and flexible by design. The purpose of this paper is to investigate why these restrictions arose and how they were implemented during the Cold War. This paper will also examine how these restrictions have evolved after the Cold War and how they have been affected by the growing political tension between NATO and Russia, and by the Russian invasion of Ukraine. Since there has been little written about these restrictions in a Swedish context, this paper provides a valuable contribution to the debate about the deployment of nuclear weapons in NATO countries.

Discussant: Dr. Matthew Fuhrmann, Professor of Political Science, Texas A&M University

15:30 – 17:00 | Lecture hall XI, 1st floor

**Session 3D: *Tracking progress towards a world without nuclear weapons***

This session will present and discuss the key findings of the 2022 edition of the Nuclear Weapons Ban Monitor. This will include the latest available data on global nuclear forces at the beginning of 2023, prepared in collaboration with the Federation of American Scientists, and legal assessment of all states’ compliance or compatibility with the Treaty on the Prohibition of Nuclear Weapons (TPNW) in 2022.

The Nuclear Weapons Ban Monitor is a research project managed by Norwegian People’s Aid, and with contributions from a broad range of external experts and institutions. It tracks progress towards a world without nuclear weapons and highlights activities that stand between the international community and the fulfilment of the United Nations’ long-standing goal of the elimination of nuclear weapons. In measuring progress, the Ban Monitor uses the TPNW as the primary yardstick, because this Treaty codifies norms and actions that are needed to create and maintain a world free of nuclear weapons. The Ban Monitor also tracks gaps in adherence to all the other key treaties in the existing legal architecture for disarmament and non-proliferation of nuclear weapons and other weapons of mass destruction.

Chair & presenter: **Grethe Lauglo Østern**, Editor, Norwegian People's Aid (NPA)

Presenters: **Hans Kristensen,** Director of the Nuclear Information Project, Federation of American Scientists;

**Dr. Stuart Casey-Maslen**, Honorary Professor, University of Pretoria

THURSDAY 15 JUNE

09:00 – 10:30 | Lecture hall X, 1st floor

**Session** **4A: *Modernising or disarming? Understanding developments in nuclear weapons policies [[10]](#footnote-10)***

Chair: Valeriia Hesse, Non-Resident Fellow, Odesa Center for Nonproliferation (OdCNP)

*The modernization of the French nuclear arsenal*

**July Decarpentrie**, Ph.D. Student of the Department of War Studies and Military History from

FHS

France is going through extensive efforts to modernize its nuclear arsenal. Ambitious projects in both legs of the French nuclear deterrent started, involving the entire French nuclear military-industrial complex. I do not question why France is modernizing its nuclear arsenal but rather why France is modernizing the way it does. More importantly, I address the idea of modernization. Surely prestige influences the French decision-making process, yet it does not explain everything, such as Paris’s choice to increase the speed of its missiles while not changing the yield of its warheads. Alternative answers focusing on rationality claim that the French efforts are a logical step toward securing the nuclear arsenal, as well as adapting to new international threats. However, the rational approach fails in explaining some aspects of French modernization such as why replacing a missile that started its service in 2009/2010 and not modernizing nuclear warheads that were last tested in 1996. I analyze the reasoning behind the French’s decisions to modernize its nuclear arsenal focusing on the rational, bureaucratic, and norms aspects. Using together realist and constructivist theories, my research aspires to move the field beyond the questions of acquisition, offering nuanced explanations of the different versions of modernization.

Discussant: Dr. Kjølv Egeland, Postdoctoral Fellow, Sciences Po

*The roles of think tanks in shaping politics of the nuclear weapons realm.*

**Marzhan Nurzhan,** PhD Candidate, University of Basel

The existing research on nuclear disarmament extensively covers the TPNW and its transformative position in changing norms, narratives, and discourses, as well as the role of the ICAN and grassroots activism. However, less is known about the roles of experts, think tanks, and scholars. In addition, there is little known about the relationship between these actors and states with respect to the production of such norms and regarding nuclear policy knowledge in general. Think tanks in particular play an important role in production of policy-relevant knowledge. They serve as intermediaries between research and policy. In my research project I explore the roles of think tanks in the nuclear weapons knowledge production realm. I examine institutional conditions of the policy knowledge production on nuclear weapons issues. While conducting empirical research and using a qualitative method, I analyse case studies of think tanks based in European democratic states and present advanced insights from the interviews. European region represents an interesting case for research as it is comprised of the states with different knowledge regimes and nuclear weapons policies. The findings of this empirical research contribute to scholarship on nuclear weapons, European studies, the politics of knowledge, and peace research.

Discussant: Dr. Kjølv Egeland, Postdoctoral Fellow, Sciences Po

*International Non-proliferation Regime and Organized Hypocrisy*

**Dr. Rizwan Zeb**, Professor of International Relations and Strategic Studies, Air War College Institute (AWCI) Karachi

Using Stephen Krasner’s organized hypocrisy model, the proposed paper would analyze the international non-proliferation regime. The paper would argue that the NPT recognized nuclear weapon states have taken no concrete steps towards nuclear disarmament other than lip service and that they use nuclear weapons to pursue their political objectives. They not only continue to retain their nuclear arsenals but also further enhance them. While states having legitimate security concerns but not considered partners are actively and collectively discouraged, states considered strategic allies are facilitated and supported in further developing their nuclear arsenals. India is a case in point. India is not a signatory of the NPT or CTBT. In fact, it is currently debating resuming testing. Nuclear Suppliers Group that was created in reaction to India’s so-called peaceful nuclear explosion in 1974, gave it a waiver in 2008 so that Indo-US civil nuclear cooperation can go on. Since then several other countries have signed nuclear cooperation agreements with India. In keeping with the above, the proposed paper will critically analyze the politics of nuclear weapons and the effectiveness (or otherwise) of the international non-proliferation regime.

Discussant: Dr. Kjølv Egeland, Postdoctoral Fellow, Sciences Po

09:00 – 10:30 | Lecture hall IX, 1st floor

**Session** **4B: *Nuclear security: Technology and Geopolitical Considerations***

Chair: Dr. Masako Ikegami, Professor, School of Environment and Society, Tokyo Institute of Technology

The assets of the Cold War arms control —i.e., Anti-Ballistic Missile Treaty, Intermediate-Range Nuclear Forces Treaty, New Strategic Arms Reduction Treaty (New START)— are all lost. The ongoing Russia-Ukraine War has heightened the risk of the actual use of nuclear weapons, as well as renewing the trend of nuclear proliferation in the form of foreign deployment of nuclear weapons, so-called nuclear sharing, let alone the dissemination of nuclear technology as a strategic measure of influence. This session will scrutinize the renewed dangerous dynamics of nuclear proliferation regionally and globally, trying to find a hint of solution to reverse this dangerous trend toward a global nuclear disarmament verified by a solid technical measure of nuclear weapons dismantlement.

*Seeking “Credible Nuclear Disarmament Verification Measures” under the NPT*

**Dr., Maj. Gen. (ret) Ichiro Akiyama,** Former Director of Inspectorate of the Technical Secretariat, Organization for the Prohibition of Chemical Weapons (OPCW)

*Nuclear weapons proliferation problems after the Cold War*

**Ambassador Nobuyasu Abe**, Former U.N. Under-Secretary-General for Disarmament Affairs and Commissioner of the Japan Atomic Energy Commission

*North Korean Nuclear strategy*

**Dr. Hideshi Takesada,** Professor, Takushoku University

09:00 – 10:30 | Lecture hall IV, ground floor

**Session 4C: *Reconsidering Influences on Disarmament Policy [[11]](#footnote-11)***

Chair: Dr. Sibylle Bauer, Director of Studies, SIPRI and co-leader of AMC’s Working Group 5

*Nuclear weapons don’t make you special: specially affected states in the formation of customary international law on nuclear weapons*

**Alicia Sanders-Zakre,** Policy and Research Coordinator, ICAN

Since the International Court of Justice introduced the concept of specially affected states in the formation of customary international law in a 1969 judgement, there has been sparse consideration of how to determine which states qualify as “specially affected” with regard to nuclear weapons. This article will argue that the concept is applicable to nuclear weapons law, develop criteria to determine which states should be considered specially affected in the development of customary international law on nuclear weapons, and determine how influential their custom should be. Future analysis on the development of customary international law on nuclear weapons should use this systematic approach to better include the custom of the broad range of states that may be considered specially affected

Discussant: Vladislav Chernavskikh, Research Assistant, WMD Programme, SIPRI

*Reforming US nuclear weapons production policy: the role of physicists*

**Dr. Curtis Asplund**, Assistant professor, Physics & Astronomy, San José State University;

The US has over 1,500 deployed nuclear weapons plus thousands more inactive or retired. Current policy calls for maintaining and “modernizing” these weapons, as well as producing a large number of new plutonium pits (the primary fission triggers in thermonuclear weapons) and several new warhead types. This will come at the cost of tens of billions of dollars per year and entail significant risks to the environment and public health. Various aspects of these policies are not justified by military or scientific requirements and are incongruous with US commitments to eventual disarmament. Physicists can play an important role in providing scientific oversight and advocating for reform. I will present my work engaging with US policy on plutonium pit production, which serves as a case study for the role of physicists and scientists in the US nuclear weapons policy process.

Discussant: Vladislav Chernavskikh, Research Assistant, WMD Programme, SIPRI

*Nuclear disarmament beyond the TPNW*

**Lyubomir Sakaliyski,** Independent researcher

The TPNW is still too young to be judged, but by virtue of being a treaty it may not be ideal in achieving its purpose. Treaties only bind their members and the NNWS have stated that they will not accede, but even if they do nothing prevents them from withdrawing afterwards. Thus, a truly permanent solution is needed. Two possible routes for such solution are within the possible scope of actions of the UNGA; i) another request for an Advisory Opinion to the ICJ and ii) specifying that the issue of the customary international (humanitarian) law related to nuclear weapons needs the attention of the ILC. There have been significant developments since 1996, such as the TNPW, and an updated advisory opinion reflecting them is needed. Res judicata does not apply to advisory opinions and the new question could be concentrated on the issue of superfluous injury, which the last advisory opinion largely ignored, thus making it possible too. ILC has not touched the issue of superfluous injury or nuclear weapons yet, so this is completely unexplored route that has much potential. Any or both of the above, combined with the TNPW have the potential for dramatical changes.

Discussant: Vladislav Chernavskikh, Research Assistant, WMD Programme, SIPRI

*How Defense Contractors Impede Governments’ Efforts for Disarmament: The Case of Raytheon*

**Sanem Topal**, MA Student of International Relations, Bilkent University

Over the last 10 years, we have seen the rise of non-governmental actors trying to make an impact on states’ disarmament policies. The most prominent example is ICAN. However, many argue that it is the government itself that can decide on pursuing disarmament at the end. My research argues that private companies, mainly the giant defense companies, have a huge impact in paralyzing government’s disarmament efforts. I focus on world’s most powerful nuclear-weapon-state, United States, where defense contractors are in a severe competition to sell their products to the US government by using the “threat card” for decades. Not enough scholarly attention has yet been paid to the issue of military-industrial complex on nuclear weapons. Defense companies lobby significant amounts of money to the congress members who decide on the acquisition and maintenance budget allocated for the strategic nuclear forces. My research looks particularly at Raytheon’s lobbying activities on nuclear weapons, who was recently awarded $2 billion contract for Long-Range Standoff Weapon as the air-leg of US nuclear triad. With my research, my aim is to create awareness regarding on the role of defense contractors in impeding particularly the US government’s efforts to pursue or even discuss disarmament policies.

Discussant: Vladislav Chernavskikh, Research Assistant, WMD Programme, SIPRI

09:00 – 10:30 | Lecture hall XI, 1st floor

**Session 4D: *Advocating for youth in disarmament - Lessons Learned from UNODA's #Leaders4Tomorrow initiative***

Chair: Philip Chennery, Researcher, European Institute of Asian Studies

#Leaders4Tomorrow initiative (<https://www.youth4disarmament.org/meetleaders4tomorrow>) is a program organized by the UN Office of Disarmament Affairs and financially sponsored by the Ministry of Foreign Affairs of the Republic of Korea. It aims to support twenty-five young leaders by hosting interactive workshops and supporting their projects that engage, educate and empower young people in disarmament. The youth leaders come from all over the world, with diverse makeup in gender and region.

The panelists of the roundtable are all participants of the #Leaders4Tomorrow program and will share their lessons learned, especially in the context of youth participation. As changemakers in our respective communities, we can share our insights in leveraging existing international institutions to amplify youth voices.

After introducing our panelists, we will center the roundtable on three key questions: (1) What are the barriers that youth face when getting involved in disarmament (2) What should institutions do to bring more youth voices in the field of peace & security (3) What can young people do to make a change.

We wish this roundtable to be a vehicle to not only further UNODA’s disarmament education strategy but also give a chance for other participants to get inspired and network with young advocates in disarmament.

Panellists: **Beom Joon Baek**, Co-founder, Youth for Privacy;

**Shimona Mohan**, Research Assistant, Observer Research Foundation (ORF);

**Mariana Roa**, Advisor, Permanent Mission of Mexico to the UN;

**Bwalya Chisanga**, Global Leader for Disarmament, UNODA;

**Monalisa Hazarika**, Leaders4Tomorrow, UNODA

11:00 – 12:30 | Lecture hall X, 1st floor

**Session** **5A: *Nuclear Diplomacy and Negotiations* [[12]](#footnote-12)**

Chair: Dr. Isak Svensson, Professor, Department of Peace and Conflict Research, Uppsala University and leader of AMC’s Working Group 1

*Veto Players, Treaty Effectiveness, and Multilateral Nuclear Arms Control*

**Dr. Stephen Herzog**, Senior Researcher in Nuclear Arms Control at the Center for Security Studies (CSS), ETH Zurich and associate of Harvard University's Project on Managing the Atom; and member of AMC’s Working Group 1

Why do some treaties face difficult entry-into-force prospects long after negotiators agree on their legal provisions? Bilateral nuclear arms control treaties usually require simple exchanges of diplomatic notes to enter into force. Their multilateral counterparts often face decidedly more contentious journeys. These treaties usually indicate the number of states that must deposit ratification instruments, or may even require participation by specific states. Accordingly, this paper presents a theory of treaty entry-into-force. I argue that negotiators may identify key named veto players to ensure successful implementation. In both arms control and other areas of international cooperation, the more veto players an agreement mandates, the greater its potential effectiveness. Yet, unintended consequences may emerge as an expanded club of veto players increases entry-into-force challenges. Put differently: There is a trade-off between treaty effectiveness and ease of entry-into-force. I demonstrate the logic of the argument with a primary source case study of the negotiation of the Comprehensive Nuclear-Test-Ban Treaty. Language requiring ratification by 44 named “nuclear-capable” states has created significant obstacles to realizing an inspectable global prohibition on nuclear explosive testing. This research has clear implications for the politics of arms control, nonproliferation, disarmament, and beyond.

Discussant: Dr. Ulrika Möller, Associate professor, University of Gothenburg and member of AMC’s Working Group 1

*Minilateralism and the NPT*

**Dr. Megan Dee**, Lecturer in International Politics, University of Stirling and member of AMC’s Working Group 1

The failure of the 2022 Nuclear Non-Proliferation Treaty (NPT) review conference to achieve an outcome agreement has again highlighted the long-standing frustrations and stagnation at the heart of multilateral nuclear non-proliferation and disarmament negotiations. In this paper I ask whether, and to what extent, minilateralism, with negotiations conducted between a “magic number” of “key” states, holds the answer to progress for the NPT. Drawing on the extant scholarship surrounding mini-multilateralism, alongside historic and recent empirical developments in group politics within the NPT, the paper first distinguishes two types of minilateralism: procedural (focusing on the “Friends of the Chair” practice) and political (focusing on the US-led CEND initiative), detailing their respective (de)merits for the legitimacy, efficiency, and effectiveness of the NPT as a multilateral forum. I argue that while the “Friends of Chair” practice is now an important embedded process of NPT review conferences, CEND constitutes something of a new high stakes game, offering prospects for achieving genuine progress for the NPT, yet at the possible expense of the multilateral process itself. The paper concludes with suggestions for best utilising procedural and political minilateralism as States Parties now look to establish a working group on strengthening the NPT review process.

Discussant: Dr. Ulrika Möller, Associate professor, University of Gothenburg and member of AMC’s Working Group 1

*Nuclear Security in War Zones: Exploring Local Battlefield Management Solutions*

**Dr. Alexander Bollfrass**, Senior Researcher at the Center for Security Studies (CSS), ETH Zurich and member of AMC’s Working Group 1

Co-author: **Dr. Govinda Clayton**, Mediation Support Manager, Centre for Humanitarian Dialogue (HD) and member of AMC’s Working Group 1

In this article, we explore the potential application of local battlefield management approaches to mitigate threats to critical nuclear infrastructure in conflict zones. We focus on the challenges faced by nuclear infrastructure in Ukraine, such as the battle at Zaporizhzhia Nuclear Power Plant (ZNPP), missile and drone strikes near other nuclear power plants, and the damage sustained by the Kharkiv Institute. As IAEA-mediated interstate negotiations have failed to reach a consensus, we investigate the rich history of local agreements between combatants for managing risks as a potential source of solutions. We analyze existing approaches to battlefield management around non-nuclear critical infrastructure, emphasizing the restrictions on hostilities and their implementation in the ongoing Ukraine conflict. We examine the Azovstal evacuation, prisoner exchanges, and precedents in other conflict zones such as Syria, Israel, and Sudan. We propose specific battlefield management approaches for nuclear energy infrastructure, including limiting the deployment of new forces to ZNPP, offering humanitarian assistance to ZNPP staff, and devising emergency procedures agreed upon in advance. The article concludes by outlining general policy ideas, advocating for supplementing national-level mediation efforts with local battlefield initiatives tailored to individual infrastructure types. We also discuss the limitations of battlefield management and potential directions for future research, emphasizing the need for a comprehensive strategy to safeguard nuclear infrastructure in conflict zones.

Discussant: Dr. Ulrika Möller, Associate professor, University of Gothenburg and member of AMC’s Working Group 1

*Blurring the Boundaries: The Role of Nuclear Coercive Diplomacy in Influencing the Bargaining Zone during Armed Conflict*

**Dr. Arvid Bell,** Lecturer on Government, Harvard University and member of AMC’s Working Group 1

Co-author: **Dr. Dana Wolf**, Lecturer, Reichman University

Nuclear risk reduction seeks to prevent unintentional conflict escalation by reducing the potential for misperception, lack of communication, or accidents to lead to the use of a nuclear weapon by a state. However, a new type of nuclear risk has emerged during the Russia-Ukraine War. The behavior of “intentional nuclear risk manipulators,” like the Russian president, is at odds with some of the normative assumptions of established risk reduction frameworks. If a common desire between nuclear weapons states to uphold the nuclear taboo cannot be taken for granted, how could nuclear risk reduction assumptions, tools, and strategies adapt? While this question has already been a topic of scholarly debate, the rhetoric of Russian political leaders during the Ukraine war has increased its relevance in anticipating likely trajectories of escalation and de-escalation in conflicts that involve one or several nuclear weapons states. This paper proposes a bargaining-oriented framework to understand the conflict behavior of intentional nuclear risk manipulators. We analyze how intentional nuclear risk manipulators respond to different negotiation approaches (coercion, incentives, or mutual accommodation), discuss how these approaches relate to bargaining leverage and bargaining range, and describe implications for rethinking nuclear risk reduction.

Discussant: Dr. Ulrika Möller, Associate professor, University of Gothenburg and member of AMC’s Working Group 1

*Time to constrain? Technology cooperation and NPT Additional Protocol*

**Giacomo Cassano,** PhD Candidate, Department of Peace and Conflict Research, Uppsala University and member of AMC’s Working Group 1

The Additional Protocol (AP) represents the, non-mandatory, most intrusive instrument under the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). Moreover, the majority of countries under the regime has already enforced the AP. However, state parties to the NPT have shown significant variation in the time spell from the moment they were eligible to the moment they enforced their AP. In this article I claim that Bilateral Technological Cooperation Arrangements (BTCA) represent a relevant incentive for countries to enforce the AP. Taking time spells before enforcement as dependent variable, while considering BTCAs as the main independent one, the study will answer the question on the role of such agreements in incentivising countries to enforce the AP. This article will thus contribute to the discussion on how cooperation on dual-use nuclear technology, typically considered to be a vector of proliferation, can also represent a means to lead countries within more intrusive control regimes. All eligible countries to the AP, and the period between 1997 and 2021, will be studied. Moreover, an expansion of existing data on bilateral civil nuclear cooperation will be performed to cover the period under analysis. A Hazard Model will then be used to answer the research question.

Discussant: Dr. Ulrika Möller, Associate professor, University of Gothenburg and member of AMC’s Working Group 1

11:00 – 12:30 | Lecture hall IX, 1st floor

**Session** **5B: *Nuclear Disarmament in Central and Eastern Europe: Recent Developments and Future Prospects[[13]](#footnote-13)***

Chair: Alicia Sanders-Zakre, Policy and Research Coordinator, ICAN

*Winning the Game of Nuclear Chicken with Memes and without Nukes: Ukrainian Reactions to Russian Threats*

**Valeriia Hesse**, Non-Resident Fellow, Odesa Center for Nonproliferation (OdCNP)

Bearing in mind the role Russia’s nuclear threats played in its war against Ukraine, it is crucial to analyse the views of various Ukrainian audiences as the party directly affected. This war in general has demonstrated how the public’s stance, support, and consequent resource mobilization can influence not only the military’s morale but also the government’s resolve. Thus, this analysis focuses on traditional and new media reactions to Russia’s nuclear threats as they appeared with a particular focus on the general public's comments, as these voices are rarely heard. The methodology includes analysing reactions in traditional and social media to nuclear threats of different nature and levels of ambiguity signalled. Russia’s attempts to coerce Ukraine by shielding conventional aggression with hybrid nuclear threats fell through. While it is true that nuclear deterrence worked against NATO’s direct involvement and has been limiting what weapons systems Ukraine could get, hybrid nuclear brinkmanship failed to intimidate the Ukrainian public and persuade the Ukrainian leadership to give in. The general mood is to continue fighting since it is an existential war for Ukraine as a state, as a democracy, and as a culture.

*Assessing the state of the Polish deterrence and disarmament debate*

**Zuzanna Gwadera,** Research Assistant, Centre for Science and Security Studies, King’s College London

The paper explores the development and position of the nuclear disarmament debate within Poland. The paper draws on historical and current Polish perspectives on nuclear disarmament and deterrence to understand how the country's history, geographical position, and geopolitical standing shape its perception of the role and effects of nuclear weapons. Poland has had a long and eventful history of grappling with nuclear weapons. From a proactive advocate of nuclear disarmament during the Cold War, it transformed into first a quiet supporter of the nuclear status quo, and now an increasingly vocal ‘true believer’ in nuclear deterrence. The paper argues that the Polish discussion of deterrence and disarmament is primarily driven by Russian armament choices and foreign policy, as illustrated by Polish government’s increasingly cautious stance on arms control and disarmament, as well as a palpable rise since 2014 of public support for Poland’s participation in NATO’s nuclear sharing programme. In her research, Zuzanna stresses the need for national and international stakeholders to engage the Polish public on the subject of nuclear disarmament and provide much-needed peace education, hopefully resulting in a more vigorous public debate.

*Keeping the Prague Agenda alive: Spotlighting the potential role of Prague in the future of nuclear disarmament*

**David Backovsky,** Associate, Centre for International Security, Hertie School

The paper explores the impact of the War in Ukraine on the nuclear arms control and disarmament regime in Czech Republic, with wider implications for the CEE region more broadly. The author argues that the war is a critical juncture that changes the calculus for engaging with Central and Eastern European states on nuclear issues. The Russian Federation's nuclear threats and the breach of international law make the deterrence strategy (under the so-called "nuclear umbrella") more compelling for CEE states, and a challenge for advocates of disarmament. The paper explores the role that Prague can play in the process of strengthening nuclear arms control and disarmament, arguing for a long-term strategy of smart, strategic, and empathetic engagement. Despite the current political and policy space in the Czech Republic being locked in its position, the paper suggests that significant nuclear and advocacy expertise exists in Prague that can build bridges for future dialogue through respect, empathy, and sustained effort.

*Nuclear Disarmament in Russia: Exploring the Impact of Peaceful Nuclear Explosions on Pro-Disarmament Shift in the Regions*

**Kseniia Pirnavskaia,** Research Consultant, Open Nuclear Network

The paper explores how peaceful nuclear explosionsт (PNEs) have impacted local communities' attitudes toward nuclear weapons and nuclear disarmament. This article is focused on the PNEs conducted in the Soviet Union from 1965-1988 in the territory of modern Russia. They are defined within the scope of this research as a nuclear threat to the people residing in the districts where former sites of peaceful nuclear explosions are located. She uses a national polling organisation’s data to determine the degree of fear average Russians feel towards nuclear weapons, as well as their views on nuclear disarmament. Kseniia considers whether or not proximity to where nuclear weapons were tested/used in some Russian regions may relate to peoples’ views on nuclear weapons. The findings demonstrate that there are marginal differences between the districts where the most and least number of PNEs were conducted. To reinforce these differences, raising awareness at the regional level on regional nuclear contexts is essential.

11:00 – 12:30 | Lecture hall IV, ground floor

**Session 5C: *Emerging technology and disarmament verification [[14]](#footnote-14)***

Chair: Dr. Thomas Jonter, Professor, Department of Economic History and International Relations, Stockholm university

*Nonproliferation Implications of the Spread of Emerging Technologies*

**Dr. Alexander Montgomery**, Professor, Reed College and member of AMC’s Working Group 6

The spread of emerging technologies—such as additive manufacturing (AM), artificial intelligence (AI), and remote sensing (RS)—could have significant implications for both the proliferation of nuclear weapons and nonproliferation efforts to stop them. These technologies can diffuse more easily due to their dual-use nature and digital formats. However, an admixture of the properties of these technologies, their users, and countervailing efforts of states and regimes create many hindrances to effective spread and could eliminate or even reverse anticipated effects. In this paper, I first discuss the barriers to three stages of the spread of proliferation-relevant technologies: diffusion, adoption, and integration. I demonstrate through a case study of the A.Q. Khan network how diffusion of centrifuge technology ended up slowing the spread of nuclear weapons. I then turn to emerging technologies, analyzing how AM, AI, and RS may have relatively small effects on the proliferation–nonproliferation balance due to similar negative feedback loops. I conclude with implications for scholarship and policy.

11:00 – 12:30 | Lecture hall XI, 1st floor

**Session 5D: *NATO membership impact on nuclear policy and practice***

Chair: Lina Hjärtström, Policy and Advocacy Director, Women’s International League for Peace and Freedom (WILPF) Sweden

This roundtable gathers academics and practitioners to discuss how NATO as a nuclear alliance affects member states’ disarmament policy and practice, and how member states can work within Nato. The panel will discuss issues like opportunities and challenges Nato present for promoting and achieving nuclear disarmament.

The panel will discuss what we know about how Nato membership affects states? Disarmament efforts, whether states previously have worked for nuclear disarmament within, towards or through Nato. How do states under Nato’s nuclear umbrella act differently from other states in multilateral disarmament forums and negotiations?

Can specific issues, like no first use-policies or reducing nuclear sharing, be achieved? What are the possibilities for Nato member states for unilaterally strengthening their disarmament work, through national legislation, collaboration in a smaller group of Nato states or with other groups of states, joining treaties like the TPNW, etc., and how would this work to promote and achieve nuclear disarmament? The panelists will elaborate possibilities that comes with new Nato member states, and what it would take for new members to change Nato’s nuclear policies and practices.

Panellists: **Dr. Tytti Erästö**, Senior Researcher, Programme on WMD, SIPRI;

**Hans Kristensen**, Director, Nuclear Information Project, Federation of American Scientists;

**Josefin Lind**, Secretary General, Swedish Physicians against Nuclear Weapons;

13:30 – 15:00 | Lecture hall X, 1st floor

**Session 6A: *Mapping nuclear negotiations and agreements: Towards More Comprehensive Data***

Chairs & presenters: **Dr. Isak Svensson**, Professor, Department of Peace and Conflict Research, Uppsala University and leader of AMC’s Working Group 1;

**Dr. Magnus Öberg**, Senior Lecturer/Associate Professor, Department of Peace and Conflict Research, Uppsala University and co-leader of AMC’s Working Group 3

This panel presents and takes stock at the two on-going data-collection projects at the AMC, on nuclear negotiations and on agreements. In this discussion, we explain the logic of the data-collection efforts, the research gap that these new data sources will try to fill, and present some of initial and preliminary findings in terms of descriptive trends demonstrating what we can now see with the help of data. The panel seeks to open a conversation, with scholars from different scientific fields, as well policy-makers, on what are the most pertinent aspects of negotiations and agreements that should be included in the data-collection process.

Panellists: **Siri Jansson**, Research Assistant, Department of Peace and Conflict Research, Uppsala University and member of AMC’s Working Group 3;

**Amanda Löfström,** Research Assistant, Department of Peace and Conflict Research, Uppsala University and member of AMC’s Working Group 3;

**Tim Gåsste,** Research Assistant, Department of Peace and Conflict Research, Uppsala University and member of AMC’s Working Group 1;

**Dr. Ulrika Möller**, Associate professor, University of Gothenburg and member of AMC’s Working Group 1

Discussants: Dr. Alexander Bollfrass, Senior Researcher at the Center for Security Studies (CSS), ETH Zurich and member of AMC’s Working Group 1;

Dr. Tytti Erästö, Senior Researcher, Programme on WMD, SIPRI

13:30 – 15:00 | Lecture hall VIII, 1st floor

**Session 6B: *Lurking in the shadows: Emerging risks of nuclear escalation [[15]](#footnote-15)***

(N.B. Different lecture hall. Session not live streamed.)

Chair:Dr. Ferdinand Arslanian, Research Fellow, University of St Andrews

*Doctrinal Asymmetries and the Third Nuclear Age: An Assessment of Evolving Deterrence Dynamics in Southern Asia*

**Javed Alam,** PhD Research Scholar, MMAJ Academy of International Studies, Jamia Millia Islamia

What are the potential deterrence disadvantages for the nuclear weapons states seeking to acquire strategic non-nuclear weapons (SNNWs)? This paper argues that increased dependence on SNNWs for offensive and defensive purposes essentially goes against the established principle of nuclear deterrence. The SNNWs create avenues for arms-race instability and crisis instability. Since Southern Asia’s nuclear order is based more on perception and intent, pursuing SNNWs is detrimental to fragile strategic stability and raises the risk of inadvertent escalation. While India-China nuclear relationship so far has managed to follow the notion of symmetrical deterrence over the years, the third nuclear age certainly brings new developments and challenges this notion. The nuclear relationship between India-Pakistan has not confirmed the idea of symmetrical deterrence and has been an outlier from the perspective of the stability-instability paradox. The third nuclear age further complicates the nuclear relation between India-Pakistan. The third nuclear age can entangle nuclear and non-nuclear technologies and confound doctrinal choices. This makes the concept of prudence redundant contrary to what the optimists-pessimists debate has argued in the second nuclear age. Perhaps, the most important and the least understood concept of the debate concerning the third nuclear age is the problem and risk of inadvertent escalation. The risk of inadvertent escalation comes from the point of entanglement of nuclear and non-nuclear forces and ambiguous doctrinal choices. China-India-Pakistan has changed or tweaked nuclear posture and doctrines over the years. The introduction of strategic nonnuclear military technologies in Southern Asia compromises and locks China-India-Pakistan into a vicious cycle of security dilemma. More importantly, a certain lack of attention by scholars and policy practitioners can be noticed about the changing nature of political discourse and perceptions about the development and advancement of military technologies and their possible deployment in Southern Asia under the nuclear shadow. The objective of this study is to explain how the quest for SNNWs will impact strategic stability in Southern Asia in the backdrop of the strategic landscape of Southern Asia due to the new military technologies. This research will contextualise and demystify the impact of SNNWs on the notion of deterrence relating to Southern Asia. The paper concludes with the argument that investing in nuclear and conventional confidence-building measures is essential for risk reduction in Southern Asia.

Discussant: Lovely Umayam, Founder & Creative Producer, The Bombshelltoe Policy x Arts Collective

*Deployment of Low-Yield Nuclear Weapon in the Limited Nuclear War: The Factors behind the Limited Nuclear War and the Risk of Full-Scale Nuclear War*

**MD Arifur Rahman**, PhD Student, East China Normal University

More than at any other point in time since the end of the cold war era, the world is currently confronted with the possibility of using low yield nuclear weapons that are not strategic in nature. In order to combat limited nuclear war, countries that possess nuclear weapons make significant investments in the construction of low yield nuclear weapons that are not strategic in nature. The most important thing to keep in mind is to utilize a weapon with a low yield in the regional conflict in order to accomplish the strategic objective of compelling the adversary to accept the treaty or encouraging them to de-escalate the fight. In the event that conventional means are unable to accomplish the task at hand, there is a significant possibility that the conflict will transition from one characterized by conventional warfare to one characterized by nuclear warfare. It is also observable that the strong link of political elements such as regime change or military capability can impair nuclear attack capability and survival, which in turn influences the decision makers’ decision regarding whether or not to take action for all out nuclear war.

Discussant: Lovely Umayam, Founder & Creative Producer, The Bombshelltoe Policy x Arts Collective

*The Road to Nuclear Risk Reduction: Enhancing & Improving Nuclear Crisis Communications*

**Sylvia Mishra**, Senior Associate for Nuclear Policy, Institute for Security and Technology

The war in Ukraine has focused the world’s attention towards nuclear risks. 60 years after the Cuban Missile Crisis the nuclear landscape is vastly different and within the newly changed global context, nuclear-armed countries have not upgraded their nuclear communications to avert a crisis or reduce global dangers. This paper will focus on the importance of crisis communications and underscore the several failure points in existing crisis communications. This paper will aim to highlight the lack of a multilateral, secure, nuclear hotline among the nine nuclear-armed countries which could lead to miscommunication and miscalculations, and crisis escalation. The paper will raise awareness of the risk of both accidental and purposeful nuclear use by highlighting how the current patchy crisis communications architecture can be improved. The paper will explore how resilient, reliable communications can help with escalation control and misperception to avoid nuclear war and will unpack how technological solutions can improve crisis communications globally. Additionally, the paper will outline some of the research collected by interviewing experts to share their insights on measures that can be adopted to reduce nuclear dangers. This paper will develop on my latest publication, titled, ”Nuclear Crisis Communications: Mapping Risk Reduction Implementation Pathways”.

Discussant: Dr. Adérito Vicente, Non-Resident Fellow, Odesa Center for Nonproliferation (OdCNP)

*Conflating factors: At the nexus of non-traditional security and nuclear risk*

**Elin Bergner**, Research Assistant, Open Nuclear Network

International security is confronted by a growing set of interrelated and mutually reinforcing cross-border challenges that cut across the domains of society, economy and the environment. Yet little attention has been paid to the compounding effects that these risks – such as, food, water, health and energy insecurity, and economic underdevelopment – have on increasing the risk of the use of nuclear weapons. As these non-traditional security risks are projected to increase in scope and expand geographically, especially as a result of climate change, it is vital for the nuclear scientific and policy communities to recognize and analyze the potential pathways from these risks to conflict escalation that could bring about nuclear weapons use. Ultimately, these conflating factors will challenge the operational resilience of existing nuclear risk prevention and de-escalation strategies. Focusing on contemporary conflicts in which the risk of nuclear weapon use has been identified as being particularly high, this paper will seek to identify and clarify the linkages between the non-traditional security risks presented above and risk of nuclear weapon use. The aim is to offer an overview of this underdeveloped area of study to a broader interdisciplinary audience and stimulate a discussion on future necessary adaptations in nuclear risk reduction approaches.

Discussant: Dr. Adérito Vicente, Non-Resident Fellow, Odesa Center for Nonproliferation (OdCNP)

13:30 – 15:00 | Lecture hall IV, ground floor

**Session 6C: *Missile proliferation, nuclear disarmament and demilitarization: a Cross-Disciplinary Approach [[16]](#footnote-16)***

Chair & presenter: Dr. Masako Ikegami, Professor, School of Environment and Society, Tokyo Institute of Technology

Starting from the US withdrawal from the Anti-Ballistic Missile Treaty (1972-2002) and Intermediate-Range Nuclear Forces Treaty (1987-2019) as well as Russian suspension of the New Strategic Arms Reduction Treaty (New START) (2010-2023), all the Cold War assets of arms control are now lost, and there is an emerging risk of anarchy involving weapons of mass destruction in tandem with missile arms race. This session makes cross-disciplinary scrutiny of the vicious escalation of arms race in the new Cold War era and aims to propose a solution such as unilateral elimination of nuclear weapons and demilitarization in a conflict-prone area.

*Missile defenses and the prospects for nuclear arms control*

**Subrata Ghoshroy**, Research Affiliate of the Program in Science, Technology, and Society at Massachusetts Institute of Technology (MIT); Visiting Professor at Tokyo Institute of Technology

As Russia launches more missiles at Ukraine, the demand for more capable air and missile defense systems grows louder from Ukraine and its NATO backers. Little distinction is made between air and missile defense systems. The Gulf War in 1991 gave missile defense proponents the perfect opportunity to bring missile defense to the forefront of US defense strategy and paved the way for unilateral abrogation of the ABM treaty in 2002. Some two decades later, the Ukraine war is helping to eclipse any debate on the adverse impact of missile defense systems on the strategic stability and hence on the prospects for nuclear arms control.

*Exploring unilateral elimination of nuclear weapons*

**Dr. Venance Journé,** Researcher, Laboratoire de Météorologie Dynamique

This study explores arguments in favor of unilateral elimination of nuclear weapons by nuclear weapon states: 1) Nuclear weapons are weapons of terror; 2) Strategic uselessness of nuclear deterrence; 3) Significant risk of explosion (deliberate or accidental with catastrophic consequences), nuclear terrorism; 4) Risk of error and escalation; the doctrine of deterrence leads to both vertical and horizontal proliferation.

*Demilitarisation – Neutralisation vs. Demilitarisation – Militarisation*

**LL.M. Elisabeth Nauclér,** Independent Expert

Demilitarisation has often been used in border regions where fighting has taken place, and troops are separated by a cease-fire agreement, but in the case of Åland the aim was to diffuse the tension in the entire region, the Baltic Sea. It was a “Confidence building measure” long before the phrase came into use. In an international treaty 1921 the demilitarisation (in peace time) was combined with neutralisation (in war time), status mixtus. As the regional tension in the Baltic Sea rising over the Ukraine War, this study will explore following questions: 1) To which extent has the demilitarisation been respected since 1921? 2) Has the demilitarisation helped to diffuse the tension? 3) How to safeguard neutralisation in the phase of regional militarisation affected by a war?

13:30 – 15:00 | Lecture hall XI, 1st floor

**Session** **6D: *Nonproliferation vs Disarmament***

For decades the goals of disarmament and nonproliferation were widely seen as compatible, falling under the larger aim of diminishing or eliminating the chances of nuclear war. More recently, however, many scholars have concluded that they are not compatible at all but rather at odds with one another. The growing consensus that the nonproliferation regime has no serious interest in actual nuclear disarmament, particularly with respect to the major nuclear powers, has led proponents of disarmament to argue that it actually has become an important, perhaps the most important, obstacle to the objective of global zero.  This roundtable will explore this new debate.

Chair & presenter: **Dr. Kjølv Egeland**, Postdoctoral Fellow, Sciences Po

Panellists: **Dr. Tom Sauer**, Professor, University of Antwerp;

**Dr. Sonja Amadae**, Lecturer, University of Helisinki

15:30 – 15:55 | Lecture hall X, 1st floor

**Keynote address by Dr. David Cortright**, Professor Emeritus, Kroc Institute for International Peace Studies, University of Notre Dame

*At the crossroads: A nuclear reckoning.*

The nonproliferation regime has been a success, with many states choosing not to develop nuclear weapons. Yet nuclear dangers have increased as East-West relations have deteriorated. Arms control has collapsed and Russia has threatened to use nuclear weapons in support of its military aggression in Ukraine. The success of nonproliferation resulted from security assurances by Western states and domestic political preferences in affected states for global integration. A solution to the current nuclear crisis will require an end to the war in Ukraine and a revival of negotiated arms reduction. Global safety ultimately depends on combining nonproliferation and disarmament and reducing reliance on nuclear weapons in international security policy.

David Cortright is the author, co-author, editor or co-editor of more than 20 books, including Towards Nuclear Zero, with Raimo Vayrynen (IISS, 2010). He and George A. Lopez co-authored or edited half a dozen books on sanctions and incentives, including The Sanctions Decade (Rienner, 2000). His latest book is a history of the Iraq antiwar movement, A Peaceful Superpower (New Village Press, 2023). He spoke out against the Vietnam War as an active duty soldier, was the executive director of SANE, the largest disarmament organization in the US, during the 1980s, and in 2003 was a co-founder of the organization Win Without War. He is chair of the Fourth Freedom Forum.

15:55 – 16:20 | Lecture hall X, 1st floor

**Keynote address by Ulla Gudmundson**, Writer and diplomat

*Nuclear Disarmament and Nato - Utopianism vs Realism?*

My point of departure for this speech will be the book The Twenty Years’ Crisis, 1919-1939, by the British diplomat and historian Edward Hallett Carr. Carr’s book is probably the best modern analysis of Utopianism versus Realism, two centuries-old currents in international relations that have run in parallel and frequently clashed. Basically, the question is of morality versus power in politics. The debate in Sweden concerning the decision to apply for NATO membership is a case in point. Without doubt, the most sensitive aspect concerns the obligation to accept membership in an alliance that explicitly affirms nuclear weapons as part of its defence doctrine. This seems to clash irrevocably with Sweden’s long-standing policy, since the days of Alva Myrdal, as a champion of nuclear disarmament. Is this so? Or can the two be reconciled?

Ulla Gudmundson is a Swedish diplomat and freelance writer. She has worked for many years in the Swedish Foreign Service, mainly on Euro-Atlantic, European and Asian security policy. She has been deputy chief of Sweden’s NATO mission, director of the Policy Analysis Office of the Swedish Ministry for Foreign Affairs, national expert in the European Commission and ambassador to the Holy See and Malta. She has published two books on NATO and a large number of essays and articles on security policy, history, philosophy and literature in Sweden as well as abroad. She writes regularly in the daily Svenska Dagbladet, contributes to various magazines and to the radio programmes Tankar för dagen and Obs. In 2011 she received the Axel Munthe Award for her booklet Pope Benedict, the Church and the World. She comments regularly on NATO in Swedish media.

16:20 – 16:30 | Lecture hall X, 1st floor

**Closing remarks by Dr. Erik Melander**, Professor, Department of Peace and Conflict Research, Uppsala University and Director of the Alva Myrdal Centre for Nuclear Disarmament

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The next Alva Myrdal Centre Annual Conference will take place on 18-19 June 2024.

The call for proposals will be open October to November 2023.

Keep an eye on our website for further information: [www.uu.se/alvamyrdalcentre](http://www.uu.se/alvamyrdalcentre)

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