



## **New Age, New Thinking: Challenges of a Third Nuclear Age**

ISYP's First Annual Third Nuclear Age Conference

Organised by:

International Student Young Pugwash (ISYP)

Supported by:

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In Partnership with:

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Third Nuclear Age Project

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Berlin, Germany



## Conference Summary

This document is a conference report on the ISYP Third Nuclear Age Conference entitled “New Age, New Thinking: Challenges of a Third Nuclear Age” (otherwise known as “ISYP Third Nuclear Age Conference” and “ISYP 3NA Conference”) and offered between the dates of October 31, 2022 and November 2, 2022. The conference mobilized over 20 emerging leaders and leading experts from around the world. With an overwhelming interest of over 150 applicants, the ISYP Board was afforded the luxury to select candidates representing disciplines from nuclear physics, automated intelligence to political philosophy. Participants ranged from 22 to 30 years old, represented 13 countries (by personal identification) and consisted of 9 women, 6 men and one nonbinary person.

Expert panels offered insight that set the stage for the conversation as well as dug into the nuanced challenges surrounding non-proliferation and arms control. The first panel featured topics including normative foundations underlying the nuclear order, the international order and non-proliferation in the face of Ukrainian war, and the centrality of trust in antagonistic diplomatic relations. The second panel focused on ongoing challenges in non-proliferation, such as assurance, the role of sanctions, financing, and accurate assessment of demand and capacity for control. The third panel closed out the conference highlighting issues of interest such as the European desire for a democratic Russia, signalling using violations of arms control agreements and the deteriorative effects on arms control architecture, and the U.S. Nuclear Posture Review’s emphasis on Risk Reduction.

Interspersed between these panels were rich and multifaceted presentation sessions by the participants. Each presentation session featured a vibrant array of topics of interest, from delivery vehicles to technological challenges to non-proliferation. The first presentation session walked the audience through the applications of sentiment data, the under institutionalization of existing global responsibility frameworks, the variable factors shifting the Middle East calculus. Key themes such as semiconductors, advanced small modular reactors and thorium fuel cycles in the second presentation session focused on technological challenges to non-proliferation. The third presentation session offered broad strokes perspectives such as the concept of multiplexity, the feminist critique of technostrategic language, strategic deterrence across multiple domains and with the present-day power structures in mind and the applications of quantum game theory to modelling human behavior precisely. Presenters dug deeper into delivery vehicles and launch technologies in the fourth session, including hypersonic vehicles and arms races, the necessity for awareness of dual use capabilities, the balance between strategic stability and international humanitarian law, the dangers of low-yield nuclear weapons, and the hurdles facing autonomous systems. The fifth and final presentation session offered insights into priorities facing emerging arenas of nuclear stability such as AI and cybersecurity - presenters highlighted the limited regulations that exist today surrounding data use and bias, ethical dilemmas surrounding automation, AI as a threat multiplier, and the continued risk of cyberattacks against nuclear weapons states. Participants wrapped up their conference week with a writing workshop with the Bulletin of Atomic Scientists, and an open invitation to pitch articles to the Bulletin based on their research presented this week.

This report would be remiss if concluded without mention of our funders and partners. This conference was generously supported by: The Heinrich Böll Foundation, the German Foundation for Peace Research through the University of Duisburg-Essen, and Pugwash Conferences on Science and World Affairs. Last but not least, this conference was delivered in close partnership with the Bulletin of Atomic Scientists and the Third Nuclear Age Project.