

Nobel laureates issue declaration for the prevention of nuclear war

They outline measures that world leaders, scientists, and the public can take to reduce the threat.

Nuclear weapons have been used in warfare twice: on 6 August and 9 August 1945, when the US dropped the Little Boy and Fat Man atomic bombs, respectively, on Hiroshima and Nagasaki in Japan. An estimated 110 000 to 210 000 people died from the explosions, and untold more were sickened. Since then, nuclear-armed states have threatened to use their bombs and justified maintaining or growing their arsenals as being necessary for deterring others from using nuclear weapons.

But 80 years later, security experts caution that the risk of nuclear weapons being used is as high as it's ever been. The US and Russia, which combined hold nearly 90% of the world's nuclear weapons, are building devices with new capabilities. No talks are in sight about a follow-on to the US–Russia New Strategic Arms Reduction Treaty (New START), the last remaining bilateral constraint on nuclear

weapons, which is set to expire on 5 February 2026. China is expanding its nuclear arsenal. The six other nuclear-armed states—France, India, Israel, North Korea, Pakistan, and the UK—are updating and in some cases growing theirs.

To brainstorm what to do about the growing threat of nuclear weapons use, Nobelists, nuclear weapons experts, activists, and academics gathered for the Nobel Laureate Assembly for the Prevention of Nuclear War at the University of Chicago in July. They issued a declaration with more than a dozen recommendations to reduce the nuclear threat. As of press time, 129 Nobel Prize winners (including 39 in physics) and 44 nuclear experts had signed the declaration.

The recommendations include calls for

- All nations to publicly recommit to nonproliferation and disarmament objectives.

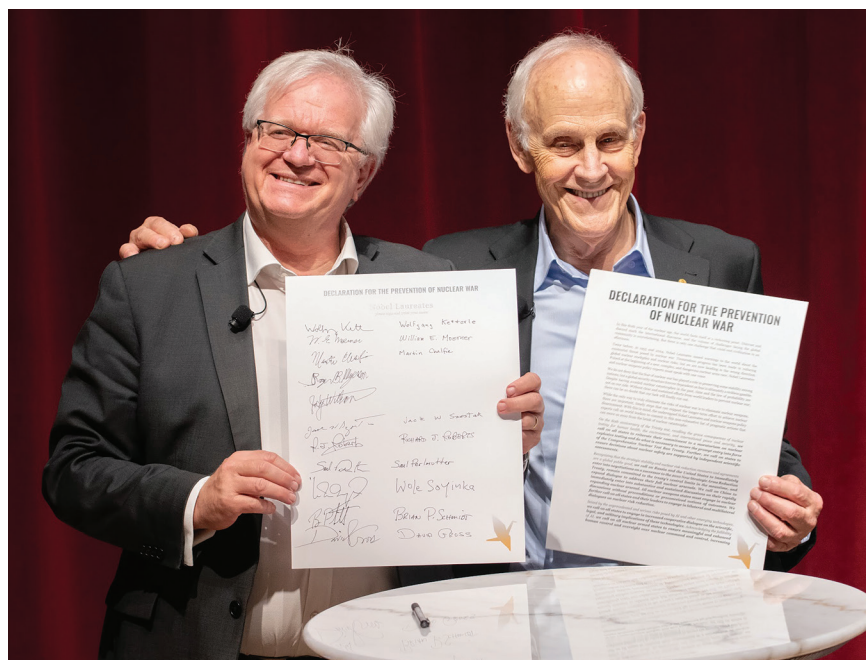
- Russia and the US to immediately enter into negotiations on a successor treaty to New START.
- China, Russia, and the US to forgo massive investments in strategic missile defense.
- All nations to reaffirm that no nuclear weapons will be stationed in outer space.
- Nuclear-armed states to ensure that at least two people are involved in decisions about the use of nuclear force.
- Scientists, academics, civil society, and communities of faith to pressure global leaders to implement nuclear risk-reduction measures.

Theoretical physicist Karen Hallberg, the secretary general of the Pugwash Conferences on Science and World Affairs and a member of the organizing committee for the July meeting, says the declaration lists “urgent and realistic actions” to reduce the increasing threat posed by weapons of mass destruction. Still, she says, “we must always remember that the only way to avoid a massive human and ecological tragedy is by the total elimination of nuclear weapons.” (See also the interview with Hallberg in *PHYSICS TODAY*, February 2025, page 26.)

The Nobel laureates are not the only group to speak out around the 80th anniversary of the start of the Atomic Age. The scientific advisory group for the United Nations Treaty on the Prohibition of Nuclear Weapons consists of 15 experts from around the world. In a 6 August statement, the group writes that “humanity today faces a renewed and growing danger from the nuclear arsenals and policies of the nine nuclear armed states and their allies. Nuclear weapons treaties have failed to enter into force, not been complied with, or been rejected altogether.”

Zia Mian, co-chair of the advisory group and a nuclear disarmament scholar at Princeton University, says that there appears to be an “increasing willingness among nuclear weapons states to make threats, not for deterrence but as a tool of coercion.”

Another concern, says Curtis Asplund, a San José State University theoretical physicist who studies the role of physicists in nuclear disarmament, is the possible integration of AI and other new technologies. “It’s a short chain of steps from detection to nuclear catastrophe. Injecting new technologies into any step—targeting, detection, communication—



NOBEL PRIZE–WINNING PHYSICISTS Brian Schmidt (left) and David Gross (right), along with University of Chicago physicist Daniel Holz, first floated the idea for the recent gathering to address the increased risk of nuclear weapons use. Schmidt and Gross pose with the resulting declaration. (Photo by Jean Lachat.)



ATTENDEES AT THE NOBEL LAUREATE ASSEMBLY FOR THE PREVENTION OF NUCLEAR WAR gather by *Nuclear Energy*, Henry Moore's sculpture at the University of Chicago on the site of the world's first human-made self-sustaining nuclear reactor. (Photo by Jean Lachat.)

could dramatically increase the risk of nuclear use."

"Part of the scientific community's role," Asplund says, "is to maintain and strengthen connections with colleagues in other countries for our mutual benefit and survival." (See also "Science acade-

mies encourage G7 leaders to prioritize nuclear arms control," *PHYSICS TODAY*, 12 June 2024.)

Manpreet Sethi, a distinguished fellow at the Centre for Air Power Studies in New Delhi, India, writes in a 5 August column for the nonprofit think tank

BASIC (British American Security Information Council) about the Nobel recommendations, "Even if one or two leaders of our times could heed the call of this declaration, it could turn the tide before we run out of time and luck."

Toni Feder

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