

# Cover Memo: Volume 22, Issue 3, Special Issue on Policy and Governance on Science, Technology and Global Security

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On behalf of the Forum on Physics and Society of the American Physical Society (APS), it is our pleasure to introduce Volume 22, Issue 3, of the *Journal Science Policy & Governance* (*JSPG*), on the topic **Policy and Governance on Science, Technology and Global Security**. This special issue is sponsored by the Forum and is supported in-kind by outreach partners from the American Physical Society Forum on Early Career Scientists (APS FECS) and the Schar School of Policy and Government at George Mason University.

Advances in science and technology have dramatically shaped national and global security for millennia but the introduction of nuclear weapons, space-based technologies, sophisticated software and other innovations have fundamentally reshaped the nature of warfare in the past few decades. They have also created painfully difficult new challenges for national and international policies and governance. In recent years technical advances have introduced entirely new security challenges. Constant vigilance is needed to anticipate potential “dual use” threats posed by new technologies – technologies developed largely for civilian purposes that could be converted by state or non-state actors into security threats. Bioengineering and artificial intelligence are vivid examples. Global climate change presents an existential threat not driven by traditional security concerns. It results, instead, from generations of dependence on technologies for producing and using fossil fuels. Innovations based on advances in science and engineering will be an essential part of a solution. The articles in this Special Issue explore some of the more important dimensions of these new security challenges.

The published articles also make it clear that non-traditional security challenges require non-traditional responses. Solutions depend in part on traditional national security organizations, but contributions from organizations responsible for regulating commerce, information technology, energy, agriculture, and many others will play key roles.

The APS Forum on Physics and Society is deeply grateful to the authors for their insightful choices of topics within this rapidly changing landscape of global security policy, for the fresh insights they offer, and for the practical solutions they propose. We believe their articles will enrich the debate and inspire new strategies for managing the clear security dangers presented by technical innovations and for finding ways to make innovation a part of the solution. We hope to work with them to ensure that their ideas are carefully considered.

Samuel Howerton, Reba Bandyopadhyay, Ivan Kanapathy, Divyansh Kaushik, Kate Weber, Michael Stebbins, Sherri Goodman, and Bill Bonvillian provided a strong background for the work in the volume by [participating in events](#) for potential authors. We are grateful to the many volunteers who contributed to this issue as mentors

or reviewers. We especially wish to recognize the superb work the *JSPG* staff did in organizing webinars, conducting careful peer reviews, and selecting an outstanding set of articles.

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**Henry Kelly** is the past-Chair of the Forum on Physics and Society of the American Physical Society. A PhD in Physics, he served as Acting Assistant Secretary and Principal Deputy Assistant Secretary of DOE's Energy Efficiency and Renewable Energy program, Principal Assistant Director for the White House Office of Science and Technology Policy in the Obama administration, and Assistant Director for technology in the Clinton Administration. He was formerly President of the Federation of American Scientists, Assistant Director of the Solar Energy Research Institute (now NREL), and an analyst at the US Arms Control and Disarmament Agency.

**Anna Quider** is the Founder and Principal of The Quider Group, a strategic federal research consulting firm, as well as an Affiliate of Northern Illinois University. In 2022, she was named among the top 100 lobbyists in the United States and the outstanding public research university lobbyist, while serving as the Assistant Vice President for Federal Relations at Northern Illinois University. Her leadership includes formerly serving as president of The Science Coalition, a national nonprofit dedicated to increasing US federal funding for fundamental scientific research, and the top science policy advisor to the Vice Presidents/Chancellors for Research of the members of the nation's leading public research universities. Dr. Quider is a Fellow of the American Physical Society (APS) and the chair-elect of the APS Forum on Physics and Society. Previously, she worked on science and innovation policy at the U.S. Department of State and the U.S. House of Representatives, where she was the 2011 APS Congressional Science Fellow. She earned a Ph.D. in Astronomy from the University of Cambridge as a Marshall Scholar and NSF Graduate Research Fellow. She also holds a BS in Physics and Astronomy and a BA with dual majors in Religious Studies and the History and Philosophy of Science from the University of Pittsburgh.