

APR21-2021-001677

Abstract for an Invited Paper
for the APR21 Meeting of
the American Physical Society

Nuclear Weapons and Missile Defense

FREDERICK LAMB, University of Illinois at Urbana-Champaign

The new nuclear-armed intercontinental ballistic missiles (ICBMs) that are being deployed by Russia, China, and North Korea are the latest developments in a decades-long competition between nuclear offenses and defenses. I will summarize the current state of this competition. New offensive weapons include North Korea's ICBMs and Russia's Sarmat ICBM and Avangard hypersonic boost-glide vehicle. Efforts to protect the United States from ICBMs using missile defense technology include the U.S. Ground-based Midcourse Defense and Aegis Ballistic Missile Defense systems. Proposed new approaches include air- and space-based rocket interceptor systems that, if successful, could disable attacking ICBMs during their boost phase. I will summarize the history of responses to the development and deployment of missile defense systems, and possible responses to the development and deployment of new types of systems by the United States.