APR18-2018-000152

Abstract for an Invited Paper
for the APR18 Meeting of
the American Physical Society

Missile Defense and Space Weapons

LAURA GREGO, Union of Concerned Scientists

Missile defenses and space weapons have always been closely related technologically, but two geopolitical trends now make this relationship critically important. First, while the United States has had an ambitious missile defense program for many years, developments in North Korean nuclear and missile programs are providing justification for enormous budget increases to build more of existing systems as well as new types of systems. Second, as satellites have become critical to military, civil, and economic life, the long-held norms against destroying an adversary's satellites and against placing weapons in orbit are under increasing pressure. Recent policy directs the Pentagon to begin building both offensive and defensive space systems, and states that space is a war-fighting domain, just as air, land, and sea. Defense systems designed to target ballistic missiles have inherent capabilities as anti-satellite weapons. The existing US ground- and sea-based missile defense systems are projected to grow significantly, and will in theory be able hold at risk nearly all Chinese and Russian satellites in low-earth orbits. China, Russia, and other countries are also developing their own missile defense systems and other means to interfere with satellites, although they are currently much more modest in scope. Additionally, the Pentagon is likely to propose this year to develop a space-based missile defense system. Such a system, requiring hundreds of orbiting interceptors to target a few launching missiles, would be extremely costly and inherently fragile. It would also be strategically disastrous, justifying adversaries to develop new nuclear weapons and delivery systems and damaging prospects for future arms control agreements. Space-based interceptors would have powerful anti-satellite capabilities, as they could reach geosynchronous orbits. Even a few interceptors in the guise of a testbed would introduce dedicated destructive weapons to orbit for the first time.