

AGA 1: Missile Defense and Outer Space

Time: Wednesday 14:00–16:30

Location: KH 00.016

Invited Talk AGA 1.1 Wed 14:00 KH 00.016
How Missile Defence Works. A Look into Technical Details — •MARKUS SCHILLER — ST Analytics München

Missile defence has lived through a renaissance over the past few years. With an increased use of missiles in conflicts since the Second Nagorno-Karabakh War 2020, the defence against missile attacks also became an ever more important issue. This is true not only on the tactical level, but also on the greater strategic stage, as America*’s plans for a “Golden Dome” vividly illustrate. This presentation will give an overview of conflicts where missiles have played a role, thus pointing out the renewed interest for defence systems, and it will try to offer insights into the physical and technical basics of missile defence systems, to make the problem of missile defence more accessible.

Invited Talk AGA 1.2 Wed 15:00 KH 00.016
Technical and Security Aspects of Hypersonic Weapons — •DAVID WRIGHT — Laboratory for Nuclear Security and Policy, MIT

Hypersonic weapons travel faster than Mach 5 and use atmospheric forces to glide at low altitudes. Boost-glide vehicles (BGV) use rocket boosters to reach high speeds and then glide without powered. Hypersonic cruise missiles (HCM) are also boosted to high speeds but use a scramjet engine to provide power during part of their atmospheric flight.

Hypersonic weapons have gained considerable attention due to their purported advantages over existing missiles - including short deliv-

ery times, high maneuverability, and invulnerability to defenses which some proponents have said will “revolutionize warfare”. However, technical analysis and computer simulations show that the fundamental physics of hypersonic flight severely constrains their performance. Comparison with existing ballistic missiles shows that many claims about the advantages of hypersonic weapons are overstated or incorrect.

This talk will discuss the physics and technology of BGVs and HCMs and their limitations in terms of speed, range, and maneuverability

AGA 1.3 Wed 16:00 KH 00.016
The Emerging Weaponization of Outer Space and Possible Restraint Measures — •GÖTZ NEUNECK — Federation of German Scientists

The challenges of a more congested and weaponized space environment are rising due to geopolitical rivalries of space-faring nations. The leading space powers accuse each other of weaponizing space while testing stealthy satellites and rendezvous and proximity operations (RPOs), direct-ascent ground-based interceptors and preparing space-based interceptors. Armed conflict in space and the deliberate destruction of satellites can cause much short-term havoc in the space environment causing long-term consequences for different space constellations. Also nuclear weapons in space can not be ruled-out any longer. The arms control history is full confidence building measures and regulations but lack on implementation. The talk summarizes the threat and discusses possible measures of restraint.