

## AGA 1: New Technologies

Time: Wednesday 11:00–13:00

Location: H-HS XVII

**Invited Talk** AGA 1.1 Wed 11:00 H-HS XVII  
**Lethality of Conventional Weapons Detonations Against Strategic Targets** — ●RYAN SNYDER — IFSH University of Hamburg

Current debates about arms control and crisis stability lack technically valid assessments about the capabilities of conventional weapons, particularly precision-guided munitions (PGMs), that have become increasingly accurate over the past several years compared with inertially-guided munitions. These accuracy improvements have now enhanced the lethality of such munitions against strategic ballistic missile silos, which will likely add further complications into future nuclear arms control efforts and lower the threshold for nuclear use in a crisis. The technical basis for U.S. PGM lethality against strategic missile silos in Russia and China will be discussed, as well as further opportunities and risks that these weapons present. Additionally, the models will also be used to assess Russian and Chinese strike capabilities against U.S. strategic ballistic missile silos.

AGA 1.2 Wed 11:45 H-HS XVII  
**Renaissance for Directed Energy Weapons?** — ●GÖTZ NEU-NECK — IFSH University of Hamburg

The call to introduce Directed Energy Weapons on the battlefield goes back to Ronald Reagan's Strategic Defense Initiative, but is renewed from time to time. Russia's President Putin introduced a new ground-based combat laser (Peresvet) and U.S. President Trump's Missile Defense Review calls for new laser weapons for defense purposes. The development of high-power lasers for research and industrial purposes has been improved significantly. The talk analyses the current state of the art for laser sources, their dual-use potential and possible solutions for arms control.

AGA 1.3 Wed 12:10 H-HS XVII  
**Algorithmen und Künstliche Intelligenz als Game-Changer? Moderne Waffensysteme zwischen Erwartung und Wirklichkeit** — CHRISTIAN ALWARDT, SYLVIA KÜHNE und ●HENDRIK ERZ — Institut für Friedensforschung und Sicherheitspolitik an der Universität Hamburg

Weltweit rüsten sich Armeen mit softwaregestützten Plattformen wie etwa Schwarmdrohnen oder Robotern aus. Diese Entwicklung wirft die Frage auf, welchen Einfluss neue Technologien auf Waffensysteme und zukünftige Kriegsführung haben und wie diese im Sinne von Rüstungs-

kontrolle reguliert werden können. Das von der Deutschen Stiftung Friedensforschung geförderte Projekt "Algorithmen und Künstliche Intelligenz als Game Changer?" untersucht das bislang kaum adressierte Verhältnis von Erwartungshaltungen an militärische Potentiale und tatsächlich realisierbaren Fähigkeiten, die etwa mit Künstlicher Intelligenz einhergehen.

Es verfolgt - in Abgrenzung zu bislang vorliegenden disziplinär ausgerichteten Betrachtungen - einen methodischen Ansatz, in dem sozialwissenschaftliche Diskursanalyse mit einer technischen Beurteilung derzeitiger softwaretechnologischer Forschung und Entwicklung zusammengeführt werden. Ziel ist eine informierte Einschätzung, was zukünftig im militärischen Bereich erwartet werden kann und was - gemessen an den Erwartungen - der "Science-Fiction" zuzuschreiben ist.

Der Vortrag skizziert den fachübergreifenden Forschungsansatz des Projektes, thematisiert die zugrundeliegenden Fragestellungen und präsentiert erste Ergebnisse.

AGA 1.4 Wed 12:35 H-HS XVII  
**AI in Decision-Making: Situational Awareness, Early Warning and Command & Control** — ●CHRISTIAN ALWARDT — Institut für Friedensforschung und Sicherheitspolitik an der Universität Hamburg

Emerging technologies are a key driver for the development and deployment of modern weapon systems and the ongoing automation of warfare. The foreseeable advances in "Artificial Intelligence" (AI), such as in research and machine learning combined with increased global access to advanced computer technologies might lead to the broader use and proliferation of "game changing" software technologies. In turn, this could fundamentally revolutionize elements of warfare such as situational awareness and decision-making. Such developments would most likely upset future arms dynamics and trigger the worldwide transformation of military forces - the military requirements of quick decision-making and execution would not only increase but also prompt further automation of command and control procedures. As a result, states could be confronted with an "automation race" coupled with increasing risks of misunderstanding and lost situational human control. In a crisis situation, this could lead to regional and strategic instability, as well as to unintended military escalations.

This talk will introduce the increasing importance of algorithms in military decision-making, briefly present exemplary fields of application, discuss the risks and show the difficulties of arriving at arms control agreements.