

**Forschungsverbund Naturwissenschaft, Abrüstung
und internationale Sicherheit (FONAS, fonas.org)**

**Research Association for Science, Disarmament and
International Security**

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Natural-Science-Based Research for Disarmament and Peace

1955 – today Pugwash Conferences on Science and World Affairs (pugwash.org)

Conceived of treaties, prepared in detail

Partial Nuclear Test Ban Treaty 1963

Non-Proliferation Treaty 1968

SALT 1972/1979

ABM Treaty 1972

Biological Weapons Convention 1972

Chemical Weapons Convention 1993

Comprehensive Nuclear Test Ban Treaty 1996

Research groups in USA, D, UK, RUS, CN, ...

Germany: some work VDW, MPI Starnberg

1980s: new groups (Bochum/Dortmund, Darmstadt, Hamburg)

1996 founded Forschungsverbund Naturwissenschaft, Abrüstung und internationale Sicherheit (FONAS, fonas.org)

(Research Association for Science, Disarmament and International Security)

General research areas:

Proposals for arms control and non-proliferation

Verification methods

Preventive arms control

Disposition of (nuclear) material

Conversion of military high technology

Conflicts from environment, resources, energy

Modelling of complex systems

Present work and groups:

Carl Friedrich von Weizsäcker-Zentrum für Naturwissenschaft und Friedensforschung (ZNF), University of Hamburg (<https://www.znf.uni-hamburg.de>) – noble-gas detection, nuclear disarmament verification

Arms control and new technologies (Institute for Peace Research and Security Policy at the University of Hamburg (IFSH) (parts of <https://ifsh.de/en/research/arms-control>) – nuclear disarmament verification

Nuclear Verification and Disarmament Group, RWTH Aachen (www.nvd.rwth-aachen.de) – nuclear archaeology

Science and Technology for Peace and Security (PEASEC), TU Darmstadt (<https://peasec.de/>) – computer science, cyber-war limitations

Physics and Disarmament (P&D), TU Dortmund University (<https://e3.physik.tu-dortmund.de/cms/de/AG-Altman/index.html>) – acoustic-seismic detection, preventive arms control

Nuclear Safeguards and Security, Research Center Jülich (<https://www.fz-juelich.de/en/iek/iek-6/research/safeguards-security>)– research for IAEA

Physics and Disarmament (P&D), TU Dortmund University:

Acoustic-seismic detection of military vehicles for monitoring of peace agreements

Acoustic-seismic detection of intrusion into final nuclear repository

Military-technology assessment, preventive arms control:

laser weapons, ballistic missile defence, „non-lethal“ weapons, uninhabited armed systems, autonomous weapon systems, small armed aircraft and missiles

Recent problems:

Group leaders have retired

**Wissenschaftsrat (German Science and Humanities Council) 2019:
natural-science/technical peace/conflict research in precarious situation**

Proposed: two centres with two directors each

Active efforts FONAS, German Foundation for Peace Research (DSF), many years -

Solutions in view:

Federal ministry BMBF: will launch support programme for young academics

Federal state Nordrhein-Westfalen: 4 new state professorships for peace research

**Physics TU Darmstadt/Peace Research Institut Frankfurt (PRIF/HSFK): professorship
just announced**

ZNF Hamburg: director's post to be announced soon