

Großes Physikalisches Kolloquium an der Universität zu Köln



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Verifying nuclear disarmament – technical possibilities and (political) limits

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HS III

The world's nuclear-armed states possess a total of over 12.000 warheads today. While many of these states work on modernising their nuclear forces or on increasing the size of their nuclear stockpile respectively, the reduction or elimination of nuclear weapons remains the ultimate goal for many countries.

Disarmament of nuclear weapons requires effective verification. Under bilateral arms control agreements only the dismantlement of nuclear weapon delivery systems was confirmed so far. However, the dismantling of a nuclear warhead has not yet been independently verified, but this may be required in future disarmament agreements.

The technical challenges for multilaterally verifying the dismantlement of nuclear weapons are complex: The actual disassembly of nuclear warheads is not expected to take place under inspectors' presence, to not violate military secrecy or international non-proliferation obligations. Therefore, procedures and techniques are needed to provide sufficient confidence that no nuclear material is diverted during the dismantlement and that the nuclear warhead is dismantled as declared and no longer usable.

The talk will provide an overview on the most promising techniques and technologies for disarmament verification. It will also highlight some technical gaps in the verification of nuclear disarmament and the role of scientific work towards a world free of nuclear weapons.

