AGA 6: Nuclear Energy Risks and Nuclear Proliferation

Time: Thursday 14:00–16:00 Location: DO24 Reuter Saal

Invited Talk AGA 6.1 Thu 14:00 DO24 Reuter Saal
Nuclear Energy Policy Issues after the 3.11 Fukushima Nuclear Accident — •Tatsujiro Suzuki — Vice Chairman, Japan Atomic Energy Commission

The Fukushima nuclear accident has become one of the worst accidents in nuclear history and it is not completely over yet. It will take at least 30 years or more to decontaminate and decommission the crippled nuclear reactors on site. Still, more than 140,000 people are away from home and restoring and assuring the life and welfare of those evacuated people is the top priority of Japanese government's nuclear energy policy. The government will release its new energy policy soon which will state that nuclear power is considered as an important base load electricity source, while committing to reduce its dependence as much as possible. For nuclear energy policy, there are certain important issues to be overcome regardless of future of nuclear power in Japan. They are; 1) spent fuel management and radioactive waste disposal, 2) restoring public trust 3) securing human resources and 4) plutonium stockpile management.

Invited Talk AGA 6.2 Thu 15:00 DO24 Reuter Saal
Fusion Energy and Nuclear Non-Proliferation — •Rob Goldston — Princeton Plasma Physics Lab, Princeton, USA

Neutrons from DT fusion can be used to produce 239Pu or 233U. However since no fertile nor fissile material need be present in a pure fusion power plant, it would be relatively easy to detect significant covert transmutation in a declared facility. Clandestine fusion-based transmutation does not appear credible. Furthermore, no fissile materials are immediately available in a fusion breakout scenario.

DT fusion systems produce and burn ˜400g of tritium per day, a small fraction of which, if diverted, could be used to enhance the efficiency, reliability and/or safety of a nuclear weapon. Very accurate T accountancy needs to be developed for fusion energy systems.

Finally, the spread of inertial fusion energy R&D may result in dissemination of knowledge relevant to the design of nuclear weapons. International agreements to restrain information transfer are required.

In summary, fusion is much safer from a proliferation standpoint than fission, but still requires verification and control.