Contribution ID: **145** Type: **Invited Lecture**

INVITED LECTURE - The very powerful UCN source at the reactor TRIGA Mainz - Application for precise measurements of the neutron half-life

Tuesday 18 September 2012 17:50 (20 minutes)

Ultracold neutrons (UCN) are free neutrons with very low kinetic energies corresponding to v˜ 5m/s. They can be stored both in material and magnetic traps and thus observed hundreds of seconds limited only by their natural lifetime. The long observation times make it possible to perform precision experiments on the neutron's fundamental properties such as the search for its electric dipole moment. Recently a new powerful UCN source has been installed at the pulsable reactor TRIGA Mainz. This source is well adapted to perform storage type experiments even at small research reactors. We plan to use the UCN source for precision experiments of the neutron half-life using magnetic storage methods. A status report on the UCN source and its application will be presented.

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Track Classification: Nuclear fuel cycles, present Gen III+ NPPs, Gen IV and Th based reactors