Contribution ID : **339** Type : **Plenary/section talk**

UCN supersource at WWR-M reactor development

Wednesday, 24 October 2018 10:40 (15)

The WWR-M reactor at NRC «Kurchatov Institute» - PNPI is going to be equipped with an high-density ultracold neutron source. Method of UCN production is based on their accumulation in the superfluid helium at 1.2K temperature. Thus, the source will provide the UCN density at EDM spectrometer equals to ρ= 1.3E4 n/cm3 which is 2 order magnitude greater than the output density of existing UCN source in the world. An extensive program of fundamental researches such as measuring of neutron lifetime and searching of neutron-antineutron oscillation is planned. In addition, CN and VCN beams are going to be equipped with condensed matter physics experimental setups. The design of the UCN source has been completed, complex tests at full-scale model showed that is possible to maintain superfluid helium under reactor heat load; calculations of an UCN source passive shielding, which ensures source safe operation, is completed. At the moment the process of UCN source manufacturing is taking place.

Primary author(s) : Prof. SEREBROV, Anatolii (NRC "Kurchatov Institute" - PNPI); Mr. LIAMKIN, Vitalii (NRC "Kurchatov Institute" - PNPI); Dr. FOMIN, Alexey (NRC "Kurchatov Institute" - PNPI); Mr. KOPTYUKHOV, Artem (NRC "Kurchatov Institute" - PNPI); Mr. PRUDNIKOV, Dmitriy (NRC "Kurchatov Institute" - PNPI); Mr. SAMODUROV, Oleg (NRC "Kurchatov Institute" - PNPI); Mr. ILATOVSKIY, Vladimir (NRC "Kurchatov Institute" - PNPI); Prof. KESHISHEV, Konstantin (P.L. Kapitza IPP of RAS); Dr. BOLDAREV, Sergey (P.L. Kapitza IPP of RAS)

Presenter(s) : Mr. LIAMKIN, Vitalii (NRC "Kurchatov Institute" - PNPI)

Session Classification : Facilities and Advanced Detector Technologies

Track Classification : Facilities and advanced detector technologies