

Status of UCN source at WWR-M reactor

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The WWR-M reactor at PNPI is going to be equipped with an ultracold neutron source of high density. Method of UCN production is based on their accumulation in the super fluid helium due to particular qualities of that quantum liquid. The possibility of maintaining the temperature $T = 1.371\text{K}$ with a thermal load of $P = 60\text{W}$ was shown experimentally, while the theoretical load is expected to be $P=30\text{W}$. The project envisages the development of experimental stations on UCN beams such as searching for the nEDM, measure the neutron lifetime, and the observation of neutron to antineutron oscillation. In addition of three beams of cold and verycold neutrons are planned. Six experimental setups will be installed on these beams. At present, a vacuum container of the UCN source has been manufactured and the manufacture of low-temperature deuterium and helium parts of the source has been started.

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