

## **He-3/He-4 dilution refrigerator used to cool polarized targets**

He-3/He-4 Dilution Refrigerator is the only device at the moment that allows to obtain an ultra-low temperature (down to 5mK) in a continuous mode (for several months and more). In 1966, one of the world's first He-3/He-4 dilution refrigerators was created in Dubna under the leadership of B.S. Neganov. Since then, more than 10 He-3/He-4 dilution refrigerators for experiments with polarized targets have been created in the Low Temperature Department of the DLNP JINR.

At present, He-3/He-4 dilution refrigerators are widely used in various fields of physics and technology: in elementary particle physics - for cooling a target material; in quantum computers - for cooling qubits; in condensed matter physics - to study the properties of matter at ultralow temperatures; in aerospace industry - for cooling detectors of telescopes; etc.

The report will present the operating principle of the He-3/He-4 dilution refrigerator, a description of the design of cryostats created at JINR, as well as a brief description of the experiments where they were installed.

**Primary author:** Dr DOLZHIKOV, Anton (JINR)

**Co-authors:** Mr GORODNOV, Ivan (JINR); Mr BORISOV, Nikolay (JINR); Mr USOV, Yuri (JINR)

**Presenter:** Dr DOLZHIKOV, Anton (JINR)

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