

## **3He–4He DILUTION REFRIGERATOR, USED TO OBTAIN ULTRA-LOW TEMPERATURE (DOWN TO 25mK)**

3He–4He 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 3He–4He dilution refrigerators was created in Dubna under the leadership of B.S. Neganov. Since then, more than 10 3He–4He dilution refrigerators have been created in the Low Temperature Department of the DLNP JINR. At present, 3He–4He 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.

### **Section**

Energy and materials science (Section 2)

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**Track Classification:** The V International Scientific Forum “Nuclear Science and Technologies”: Energy and materials science (Section 2)