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MHD-PbLi Facility for Experiments at Real Blanket Relevant Thermo-Hydraulic Conditions

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The report describes and presents for the potential collaborators the MHD PbLi experimental facility at IPUL designed for liquid metal blanket related investigations. As the key element of the facility the cryogen-free magnet systems should be considered providing an up to 5T field in a D=30 cm and L=100 cm bore. Since a water cooled heat shielding is installed working temperatures up to 500°C could be discussed. The experimental facility includes a SS316L made loop, an EM pump and flowmeter, pressure gauges with a direct electrical output, a system for measuring pressure drops along the channels, probes for registration of electric potential variations on the channel walls, a data sampling system and a processor minimizing the measuring errors, a system of thermal stabilization. In many relations the introduced MHD PbLi experimental facility at IPUL should be considered as a step forward compared with similar existing facilities. This experimental facility modification was used in experiments with the models of LLCB channel units typical to the Indian blanket concept.

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