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Development of Experiment on Multiple-Mirror Trap for Fusion in Budker INP

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In 2015, the existing GOL-3 multiple-mirror trap has been converted into three specialized devices, each dedicated to a specific scientific problem. Experiments on studies of plasma mechanisms of sub-THz radiation generation use the GOL-3T device. A device with a sub-ms electron beam was isolated for further studies of ITER-grade transient heat loads to tungsten. Research of multiple-mirror physics will continue in a new GOL-NB device that will consist of a central trap with 0.3 - 0.6 T field, 2.5 m length and 1 m diameter and two attached multiple-mirror sections with 4.5 T field. The plasma will be heated by 1.5 MW NBI. Operation of the first stage of GOL-NB started in 2015. It includes 6-m-long 4.5 T solenoid of variable configuration with a plasma gun. The $(1-4) \times 10^{20} \text{ m}^{-3}$ plasma stream transport through the system was studied. We will also present other activity on the GOL-NB project. A new helical mirror confinement idea and the first concept exploration device SMOLA will be presented as well.

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