Abstract Submitted
for the DPP13 Meeting of
The American Physical Society

Gasdynamic Multiple-Mirror Trap[1] ALEXEI BEKLEMISHEV, ANDREI ANIKEEV, PETER BAGRYANSKY, ALEXANDER BURDAKOV, DMITRII GAVRILENKO, ALEXANDER IVANOV, SERGEI POLOSATKIN, STANISLAV SINITSKY, Budker Institute of Nuclear Physics; Novosibirsk State University — The new linear device for confinement of fusion plasmas, GDMT, is being developed at the Budker Institute of Nuclear Physics, Novosibirsk. The facility will combine features of existing GOL-3 and GDT devices: the central GDT-like cell with sloshing NBI ions, and the multiple-mirror plugs for suppression of axial losses. Such combination became feasible due to recent discoveries. In particular, the requirement of flute-mode stability can be relaxed by using vortex confinement, achieved by plasma biasing through open field lines. This allows the use of potentially destabilizing multiple-mirror sections. Another key effect is the enhanced multiple-mirror confinement at low densities, which is due to collective rather than coulomb scattering of ions. Hence the multiple-mirror plugs can work at pressures compatible with magnetic confinement. These two main technologies are supplemented by axial injection of pulsed electron beams. Besides additional plasma heating (like in GOL-3), such injection can be used for induced collective scattering in the multiple-mirror plugs and for plasma biasing. The new device is designed to be superconducting and modular. It will be built in stages, with the first stage, GDMT-T, intended for PMI studies.

[1]The work was financially supported by Ministry of Education and Science RF

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Date submitted: 12 Sep 2013 Electronic form version 1.4