Modeling neutral gas kinetics in expander of a gasdynamic trap [[1]](#footnote-1)\*)

1,2Beklemishev A.D., 1,2Fedorenkov E.A.

1Budker Institute of Nuclear Physics SB RAS, Novosibirsk, RF, [bekl@bk.ru](mailto:bekl@bk.ru)  
2Novosibirsk State University, Novosibirsk, RF.

The paper presents results of numerical modeling of redistribution of neutral gas particles outside of the plasma plume in expanders of gasdynamic traps. The semi-collisional gas is heated by the plasma, so that its density at the plasma edge and at the vessel wall may differ by orders of magnitude. This effect is obviously extremely important for designing the vacuum systems.

Due to the nature of the effect the Monte Carlo methods are inefficient, so that the gas dynamics is described via kinetic equation with Boltzmann collision operator. A fast conservative computational algorithm for rough grids is described.

1. \*) [DOI: abstracts of this report in Russian](http://www.fpl.gpi.ru/Zvenigorod/XLVII/Cm/ru/KE-Beklemishev.docx) [↑](#footnote-ref-1)