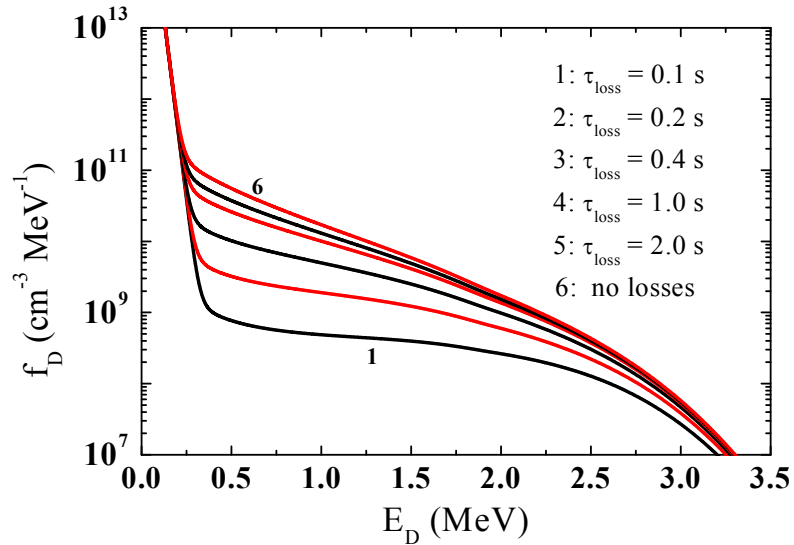
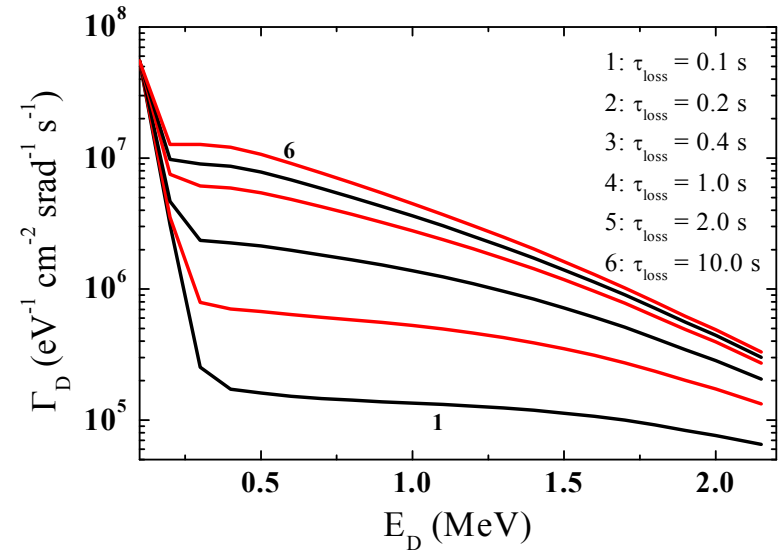


On the Possibility of Alpha-Particle Confinement Study in ITER by NPA Measurements of Knock-on Ion Tails



modeling of fast knock-on ion energy distributions in DT-fusion plasma for the set of different confinement times τ_{loss} is performed



neutralized knock-on ion fluxes escaping from the plasma volume are calculated

- it is shown that the energy dependence and absolute intensity of neutralized knock-on ion fluxes depend directly on the fast ion confinement time, thus providing an opportunity to get information on the alpha-particle confinement in DT-plasma;

- measurements with the use of the neutral particle analyzer HENPA* may allow one to estimate the fast ion confinement time in the range from "poor" (~ 0.1 s) to "good" (~ 10 s) confinement. In addition to that, knock-on flux measurements can be used as an instrument for the fast control of the plasma burning regime.

*AFANASYEV, V.I., et al. "Neutral particle analysis on ITER: present status and prospects", Nucl. Instr. Meth. Phys. Res. A 621 (2011) 456.