

# The optimal axis-symmetrical plasma potential distribution for plasma mass separation

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The technology of separating substances of varied molecular weights in electric and magnetic fields is one of several solutions to the problem of spent nuclear fuel disposal. At the experimental installation LaPlaS [1,2] in the JIHT RAS, such plasma method is being developed. The model substances (Pb and Ag) are evaporated, ionized and further separated in crossed radial electric and axial magnetic fields. The particles collection occur when they turn around in the point, that has injection point potential and particles have minimal kinetic energy. The electric field is axial symmetrical and such a turn point definitely exists. To diminish the beams scatter the first turn point was chosen. Nevertheless, beams dispersion in the collecting point is enough to significant overlapping. The main purpose of this paper was to search for symmetrical plasma potential, which provides the maximum possible beams with different masses separation to increase separation quality. It was defined, that angle between collection areas  $\Delta\phi = \pi$  can be achieved in uncountable ways and it is possible to require extra to improve separation quality.

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