

Guiding of 60 keV O^{6+} Ions through Nanocapillaries in an Uncoated Al_2O_3

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Membrane

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Abstract:

We measure the transmission of O^{6+} ions with a higher energy of 60 keV (in turn a higher value of E_p/q) through capillaries in an uncoated Al_2O_3 membrane, and obtain agreements with previously reported results in general angular distribution of the transmitted ions and the transmission profile width variation with capillary tilt angle. The transmission fractions as a function of the tilt angle can be fitted to the semi-empirical Gaussian-like function well. Due to using uncoated capillary membrane, our ψ_c is larger than that using gold-coated one, in spite of our larger value of E_p/q , which suggests a larger equilibrium charge Q_∞ in our experiment.

The Intersection Operation