Abstract Submitted
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Cross Sections and Transport Properties of BR^- Ions in AR[1] JASMINA JOVANOVIC, Faculty of Mechanical Engineering, University of Belgrade, VLADIMIR STOJANOVIC, ZORAN RASPOPOVIC, ZORAN PETROVIC, Institute of Physics, University of Belgrade — We have used a combination of a simple semi-analytic theory - Momentum Transfer Theory (MTT) and exact Monte Carlo (MC) simulations to develop Br^- in Ar momentum transfer cross section based on the available data for reduced mobility at the temperature T =300 K over the range 10 Td $\leq \quad E/N \quad \leq$ 300 Td. At very low energies, we have extrapolated obtained cross sections towards Langevin's cross section. Also, we have extrapolated data to somewhat higher energies based on behavior of similar ions in similar gases and by the addition of the total detachment cross section that was used from the threshold around 7.7 eV. Relatively complete set was derived which can be used in modeling of plasmas by both hybrid, particle in cell (PIC) and fluid codes. A good agreement between calculated and measured ion mobilities and longitudinal diffusion coefficients is an independent proof of the validity of the cross sections that were derived for the negative ion mobility data. In addition to transport coefficients we have also calculated the net rate coefficients of elastic scattering and detachment.

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