

Abstract Submitted  
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**Ultracold atom-ion collisions with Beryllium** DIEGO VALENTE, ROBIN CÔTÉ, University of Connecticut — We investigate charge transfer in collisions of Be-Be<sup>+</sup> at ultralow temperatures. Using the best available  $^2\Sigma_g^+$  and  $^2\Sigma_u^+$  potential curves, we calculate the elastic, charge-transfer, and total cross sections. Results found for several Be isotopes are presented and discussed. In the low temperature limit, we analyze the structure presented by the cross sections as functions of energy. For higher temperatures beyond this limit, we compare the quantum calculations with those obtained by a semiclassical Langevin formula. We find charge-transfer cross sections to be large even at a higher temperature range, indicating this scheme is a candidate for producing cold ions efficiently by sympathetically cooling them with ultracold atoms.

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