

Abstract Submitted  
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**Long-range interaction between Rydberg atoms and alkali-metal dimers**<sup>1</sup> VANESSA OLAYA AGUDELO, FELIPE HERRERA<sup>2</sup>, Department of Physics, Universidad de Santiago de Chile, Av. Ecuador 3493, Santiago, Chile., JESÚS PÉREZ-RÍOS, Max Plank Institute, Berlin — Rydberg atoms have been proposed for non-destructive detection of cold molecules in beams and optical traps and also for sympathetic cooling of cold molecules to the ultracold regime. In order to assess the experimental feasibility of these applications, an accurate understanding of the long-range Rydberg-molecule interactions is needed. We obtain accurate  $C_5$  and  $C_6$  coefficients that characterize the long-range interaction between an alkali metal atom A with  $n > 15$  [ $A = \text{Cs}, \text{Rb}$ ] and a heteronuclear alkali-metal dimer B in the electronic and vibrational ground state [ $B = \text{LiCs}, \text{RbCs}, \text{LiRb}$  with  $J < 3$ ]. Possible applications for the photoassociation of alkali-metal trimers are discussed.

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