Long range interactions between like homonuclear alkali metal diatoms JASON BYRD, JOHN MONTGOMERY, JR., ROBIN CÔTÉ, University of Connecticut Department of Physics — Long range electrostatic and van der Waals coefficients up to terms of order R^{-8} have been evaluated by the sum over states method using *ab initio* and time dependent density functional theory. We employ several widely used density functionals and systematically investigate the convergence of the calculated results with basis set size. Static electric moments and polarizabilities up to octupole order are also calculated. We present values for Li_2 through K_2 which are in good agreement with existing values, in addition to new results for Rb_2 and Cs_2.

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