Abstract Submitted
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Permanent dipole moment of alkali-strontium diatomic molecules[1] OLIVIER DULIEU, MIREILLE AYMAR, Laboratoire Aimé Cotton, CNRS, Université de Paris Sud, Orsay, France, ROMAIN GUÉROUT, Laboratoire Kastler-Brossel, Paris, France — Ultracold gases of alkali atoms and alkaline-earth atoms are routinely created experimentally. Using a quantum chemistry approach based on effective core potentials, core polarization potentials, and full configuration interaction for the three valence electrons, we computed the electronic structure and the permanent dipole moment of the diatomic polar molecules composed of one alkali atom A=Li, Na, K, Rb, Cs and one strontium (Sr) atom. Properties for the lowest doublet and quartet states of each species are determined. We discuss the prospects for such polar molecules to be used to achieve dipolar quantum gases.

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