New \textit{ab initio} potential curves for the ground and low-lying excited states in NaCa$^+$ and LiBe$^+$ molecular ions$^1$ DI SHU, SANDIPAN BANERJEE, JOHN A. MONTGOMERY JR., ROBIN CÔTÉ, Department of Physics, University of Connecticut — We report new accurate \textit{ab initio} calculations for the ground and low-lying excited states in NaCa$^+$ molecular ion and the lowest singlet and triplet states in LiBe$^+$. Preliminary results of the corrections due to the nuclear hyperfine interactions in the lowest singlet and triplet states for NaCa$^+$ are also reported. The \textit{ab initio} calculations were performed using valence multireference configuration interaction (MRCI) with complete active space self consistent field (CASSCF) orbitals.

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