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Binding energy and geometry of e^+Na JANINE SHERTZER, College of the Holy Cross, S.J. WARD, University of North Texas — We calculate the non-adiabatic binding energy and geometry of the weakly bound state of e^+Na. We use the Peach model potential to describe the e^+-Na^+ and e^--Na^+ interactions and solve the effective three-body Schrödinger equation with the finite element method. Because the model potential gives rise to three spurious states (corresponding to 1s, 2s, and 2p), the true non-adiabatic ground state of e^+Na is embedded in a dense spectrum of spurious states. We developed a technique for extracting the correct ground state for e^+Na, even when the energy is nearly degenerate with a spurious level. This is the first calculation to include the quadrupole term in the polarization potential.

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