

Supporting Information

Adiabatic and Diabatic Investigation of Numerous Electronic States for the Alkali Dimer FrNa

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S1 Adiabatic potential energy curves of $1,3\Delta$

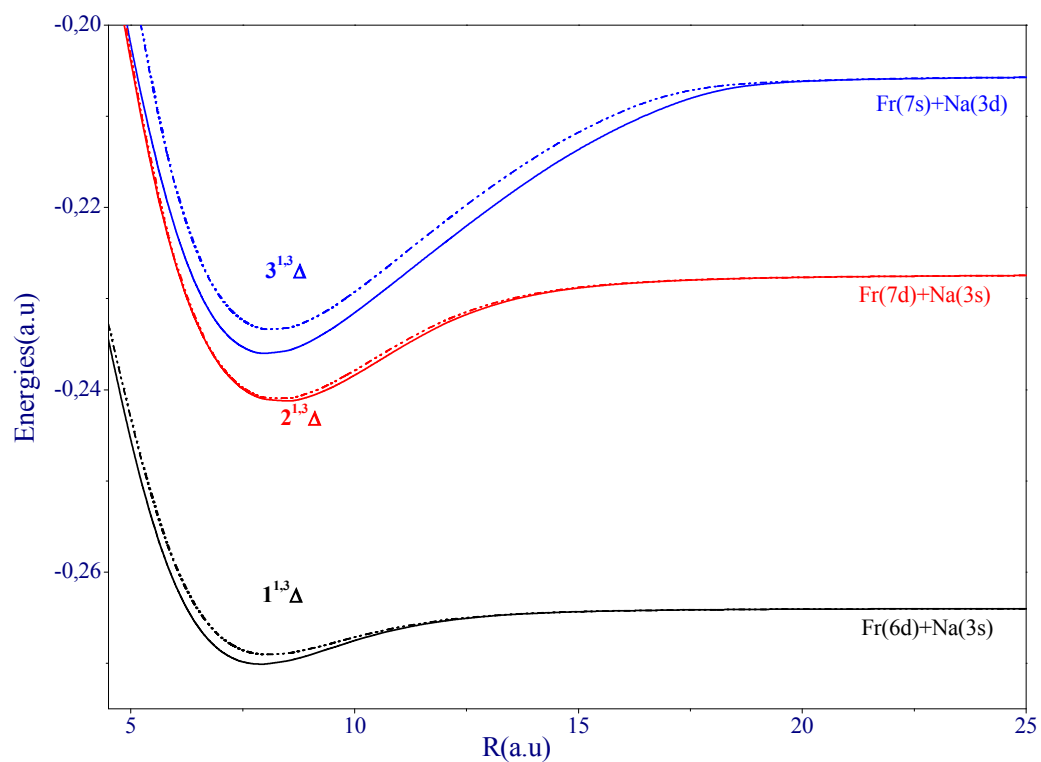


Figure S1: Adiabatic potential energy curves of 1Δ states (solid lines) and 3Δ states (dotted lines) dissociating below the ionic limit $\text{Na}\cdot\text{Fr}^+$.

S2 Diabatic potential energy curves of $^1,^3\Delta$

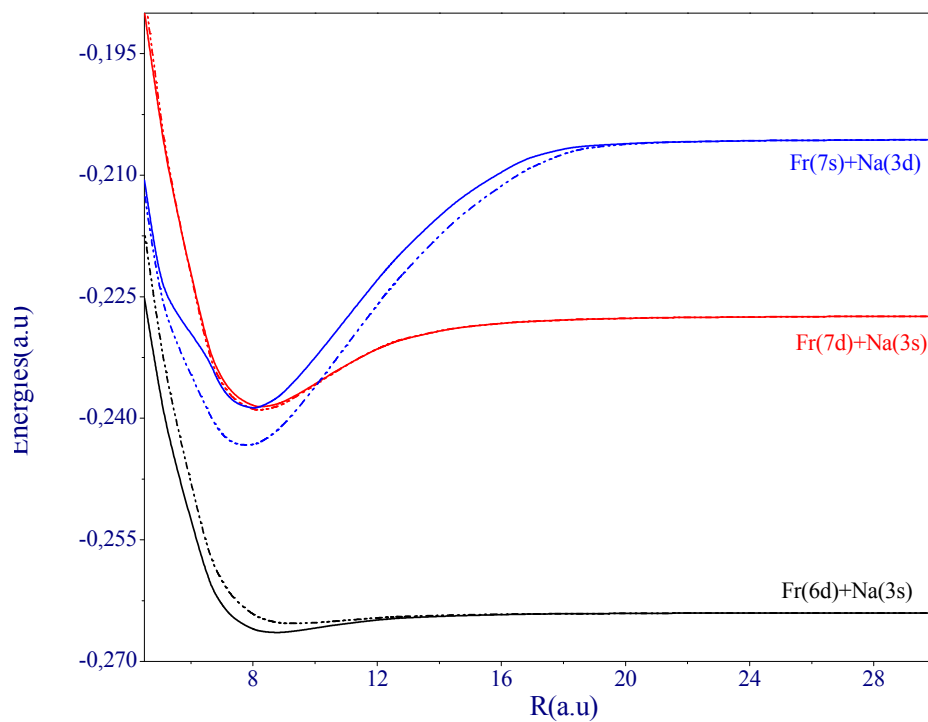


Figure S2: Diabatic $^1,^3\Delta$ potential energy curves of FrNa. ($^1\Delta$ states are in solid lines and $^3\Delta$ states are in dotted lines)

S3 Adiabatic Permanent Dipole Moment of $1,3\Delta$

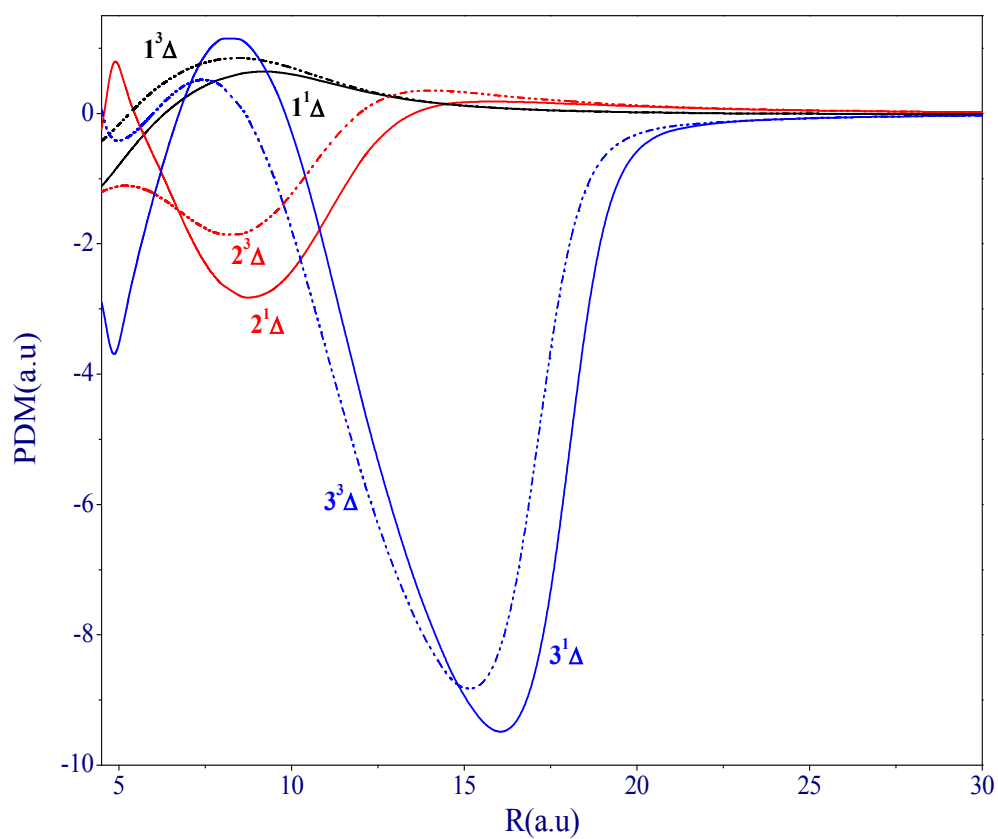


Figure S3: Adiabatic Permanent Dipole Moment for 1Δ states (solid lines) and 3Δ states (dotted lines) as a function of the internuclear distance (all in a.u.) for the FrNa system.

S4 Diabatic Permanent Dipole Moment of $^3\Sigma^+$

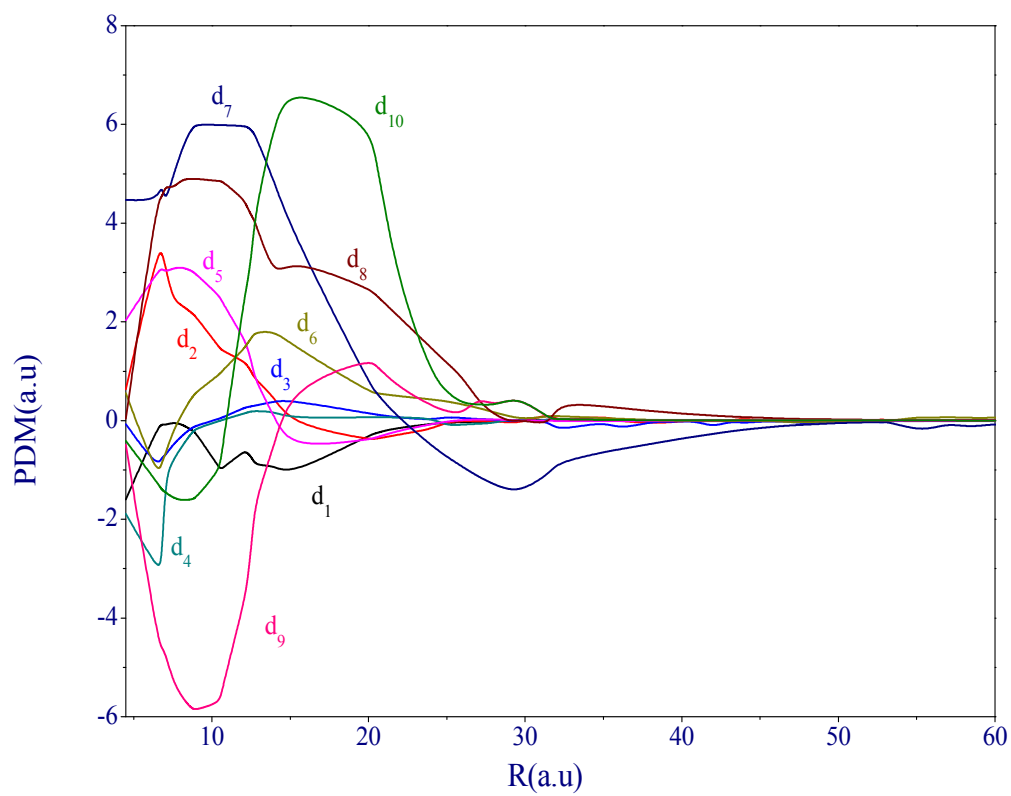


Figure S4: Permanent dipole moment for the $^3\Sigma^+$ diabatic states of FrNa