

## Supporting Information

### Investigation of Alkali Metal Polyfluorides by Matrix-Isolation Spectroscopy

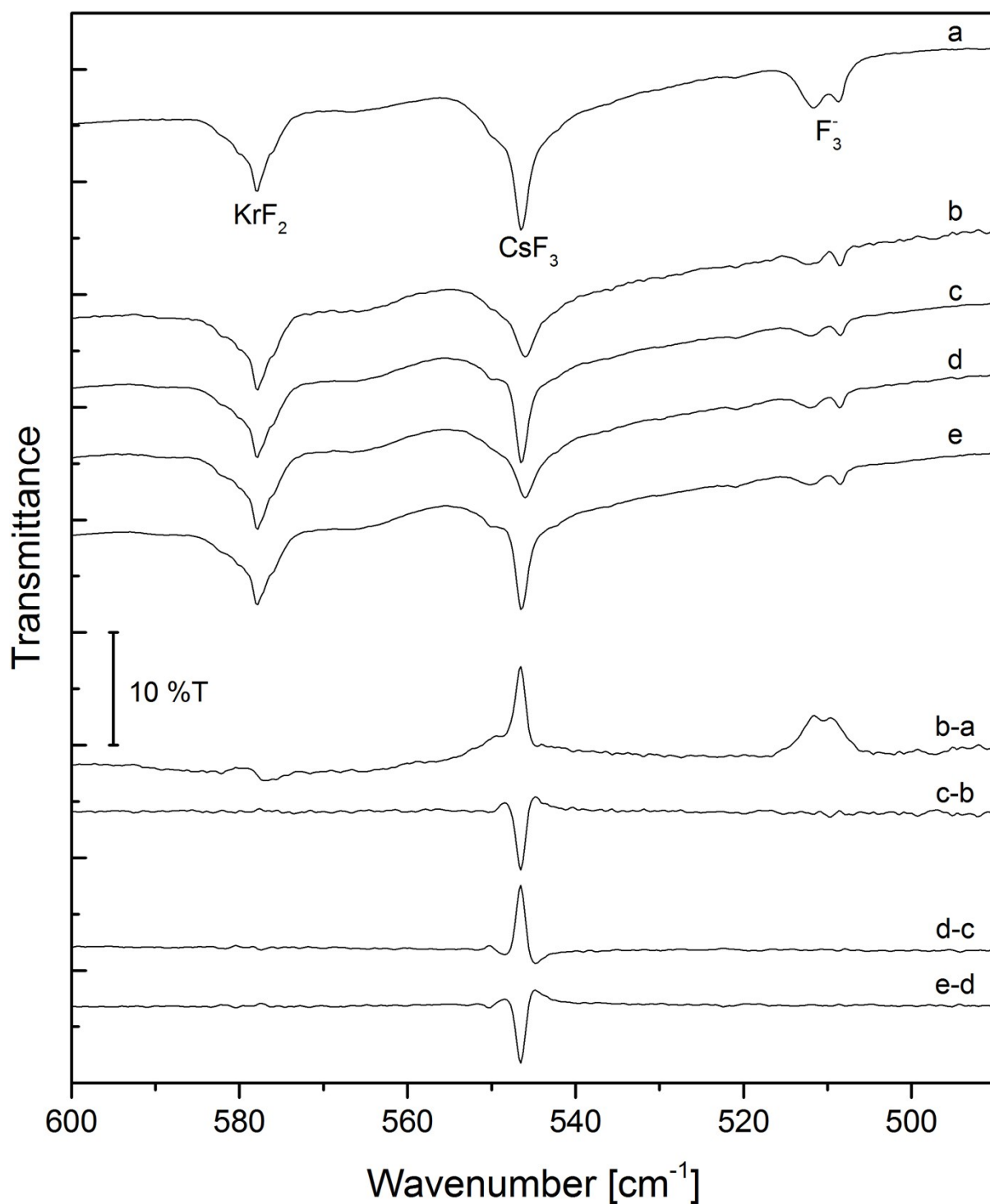
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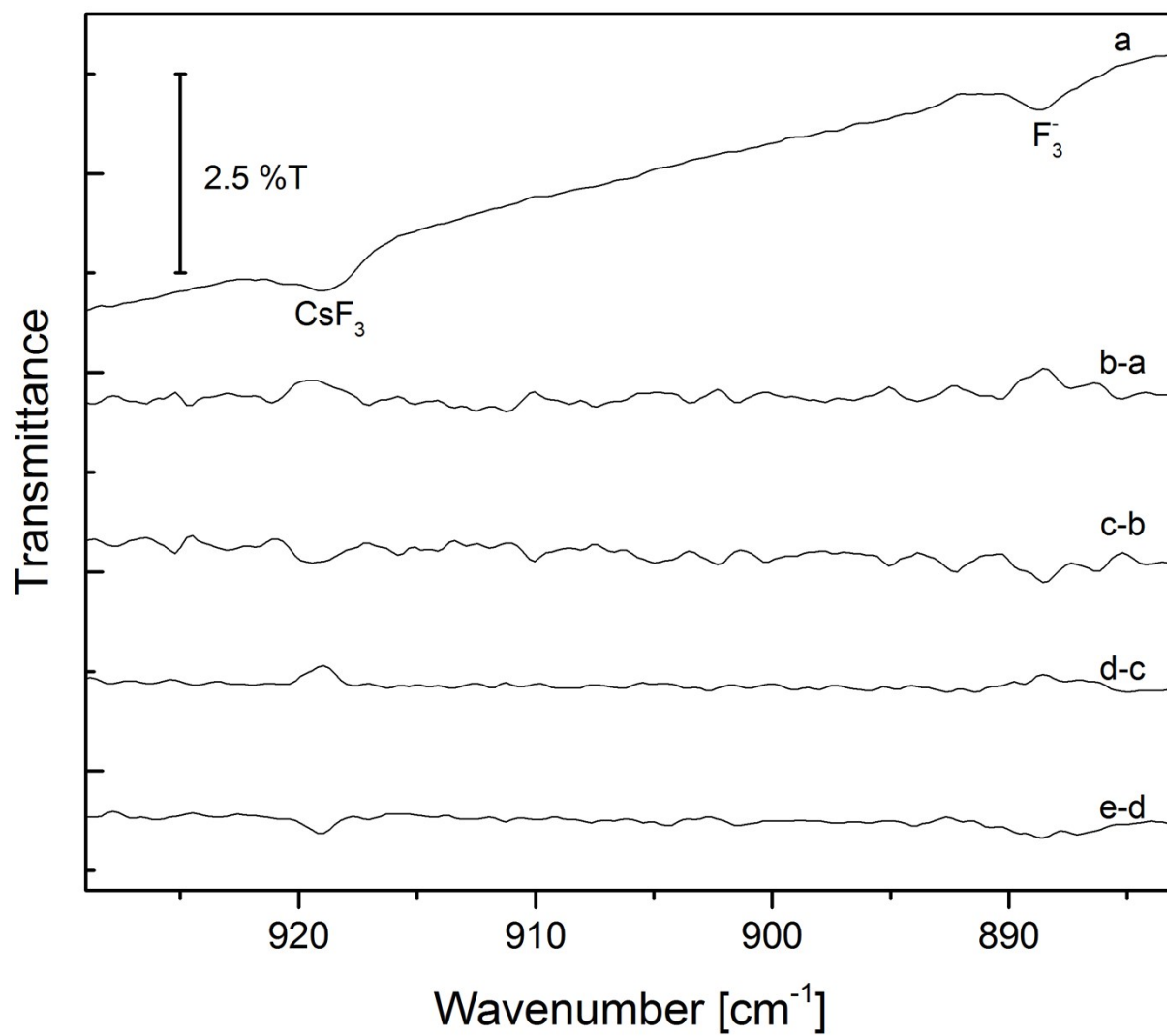
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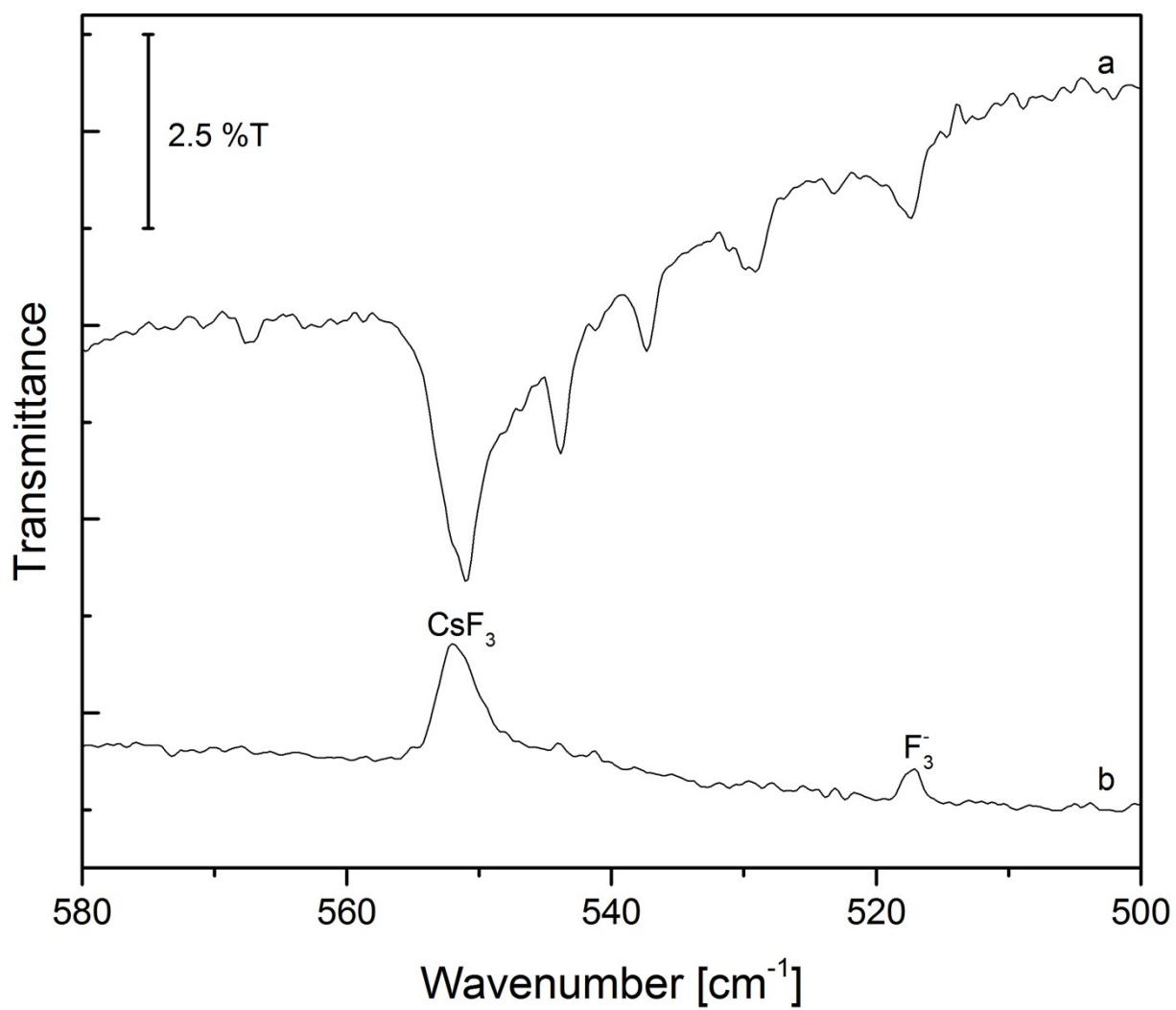
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**Figure S1:** IR spectra of reaction products of laser ablated CsF and F<sub>2</sub> in solid krypton, a) transmittance spectrum of CsF + F<sub>2</sub> (6 %) in solid krypton at 5 K, b) transmittance spectrum after heating to 20 K, c) transmittance spectrum after recooling to 5 K, d) transmittance spectrum after repeated heating to 20 K, e) transmittance spectrum after repeated cooling to 5 K, γ-x) difference spectra - bands pointing upwards indicate depletion, bands pointing downwards indicate formation of the corresponding species.



**Figure S2:** Combination bands in the region from 880 to 930  $\text{cm}^{-1}$  of the spectra displayed in S1.



**Figure S3:** IR spectra of reaction products of laser ablated CsF and F<sub>2</sub> in solid nitrogen at 5 K, a) transmittance spectrum of CsF + F<sub>2</sub> (6 %) in solid nitrogen, b) difference spectrum after irradiation with  $\lambda > 220$  nm.