

Abstract Submitted  
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**Evidence for the Formation and Solvation of the  $(\text{Na}^+, \text{e}^-)$  Complex Pairs in Tetrahydrofuran (THF)** MOLLY CAVANAGH, ROSS LARSEN, BENJAMIN SCHWARTZ, University of California, Los Angeles — Using ultrafast spectroscopy, we monitor the spectral relaxation of the solvated sodium atom created following the ultrafast excitation of the sodium anion (sodide) charge-transfer-to-solvent band in THF. Immediately following excitation, a sodium atom that has the characteristic gas-phase 590-nm D-line absorption is formed. By untangling the overlapping spectral dynamics of the sodide bleach and solvated electron, we are able to cleanly elucidate the dynamics of the Na atom, whose absorption spectrum eventually shifts to  $\sim 900$  nm. We observe a fast,  $\sim 300$  fs solvation of the immediately formed gas-phase-like Na atom species followed by a chemical interconversion in  $\sim 800$  fs, as characterized by an isosbestic point, into a new species. The new species, which we assign as a  $(\text{Na}^+; \text{e}^-)$  contact pair, undergoes slow solvation in  $\sim 10$  ps to ultimately form the equilibrium 900-nm absorber. In combination, our data offers the most complete picture of the dynamics of the sodide CTTS reaction and its spectral intermediates.

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