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PULSE RADIOLYSIS IN ANHYDROUS HYDROGEN FLUORIDE: A NEW METHOD OF ELECTRON TRANSFER IN FLUORIDE MEDIA

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The first attempt to perform pulse radiolysis in anhydrous HF is described. The reducing properties of the solvated electron, if it exists, or the electron attached to the molecule as HF^- , are used on appropriate solutes, and also the oxidative properties of the counter ion formed. The technique of analysis is the rapid UV - visible spectroscopy between 200 and 1200 nm. It allows the observation of species which lifetime is in the nanosecond range.

For example Tl(I) , as thallium mono-fluoride, is shown to be converted in Tl(0) and on the other hand in Tl(II) and Tl(III) , Tl(0) and Tl(II) being unstable in the scale of usual chemistry.

This opens a new field of research in fluoride media where unstable unusual high (or low) oxidation state species can be formed and observed.