

A High Resolution Spectral Study of Isolated  
Uranium Ions ( $U^{3+}$  and  $U^{4+}$ ) in Fluorite Crystals.

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There has been considerable recent interest in uranium atoms doped into fluorite crystals. Much of this is for laser devices, for whose action the details of the energy levels of the uranium ion are often not important. However, in general those reports which do assign spectral features to the energy levels of isolated uranium ions have been flawed in that almost all, if not all, samples worked with were such that most of the uranium ions were present not as isolated single ion dopants.

We will present our work, to date, of accurately measuring the energy levels of uranium ions ( $U^{3+}$  and  $U^{4+}$ ) in  $CaF_2$ ,  $SrF_2$ , and  $BaF_2$ .