

## Effect of Yb and Sm Doping on Thermoluminescence and Optical Properties of Lithium Fluoride Nanophosphor

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**Abstract :** This paper reports the thermoluminescence as well as optical properties of rare earth doped lithium fluoride (LiF) nanophosphor, synthesized via chemical route. The rare earth impurities (Yb and Sm) have been observed to increase the deep trap center capacity which, in turn, enhance the radiation resistance of the LiF. This suggests the viability of these materials to be used as high dose thermoluminescent detectors at high temperature. Further, optical absorption measurements revealed the formation of radiation induced stable color centers in LiF at room temperature which are independent of the rare earth dopant.

**Keywords :** lithium fluoride, thermoluminescence, UV-VIS spectroscopy, gamma radiation

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