

## **Effect of irradiation parameters on defect aggregation during thermal annealing of LiF irradiated with swift ions and electrons**

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*PHYSICAL REVIEW B* **82**, (2010) 144116

Absorption spectroscopy were performed to study the effects of thermal annealing on the aggregation of color centers in LiF crystals irradiated with different ions between carbon and uranium of megaelectron volt-gigaelectron volt energy. The beam parameters such as energy, energy loss, and fluence have a pronounced influence on the initial defect composition and concentration as well as their evolution upon thermal annealing. A distinct phenomenon was observed, viz., the enhancement of  $F_n$  centers for annealing temperatures between 500 and 700 K, followed by Li colloid formation above 700 K. The phenomenon requires specific irradiation conditions whereas the formation of Mg colloids from Mg impurities occurs in all irradiated crystals. The mechanisms of annealing and colloid formation are discussed.