

Radiation Damage in Li₂O and Recovery During Thermal Annealing

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Abstract. Lithium oxide is a potential candidate material for fusion reactor blankets. Many groups are being devoted to investigating the physical and chemical properties of this material. Corrosive and radioactive surroundings may reduce the reactor performance. Heavy ions, fusion products, alpha particles and neutrons are the reasons for irradiation damage. During operation of the fusion reactor, severe irradiation damage will be introduced in Li₂O by neutrons with energies up to 14 MeV [1]. Isolated Frenkel defect pairs take place along the path of the incoming particle. As a consequence ingrowth of defects change the lattice parameter, electrical resistivity, etc. [2] Despite all these undesirable situations, lattice recovery and damage annealing could take place with increasing temperature. In order to understand the microscopic events and thermophysical properties, molecular dynamic simulation is performed. Computational results that we obtain from molecular dynamics simulation compared with experimental data.

1. K. Noda , Y. Ishh , H. Matsui , H. Watanabe, *Radiation Effects*, **97**, 297-305 (1986).
2. Hj. Matzke, *Radiation Effects*, **64**, 3-33 (1982).