

APPLICATION OF THE CZOCHRALSKI METHOD FOR LITHIUM FLUORIDE SINGLE CRYSTAL GROWTH

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Lithium fluoride (LiF) is an inorganic compound that crystallises in a face-centred cubic structure described by the space group Fm-3m [1]. Due to its broad transmission range of 0.120-7 μm [2], LiF single crystals play an important role in advanced optical applications like laser systems, optoelectronics, X-ray and spectroscopic equipment [3, 4].

The aim of this work is to investigate the influence of the parameters of the growth by Czochralski method on the shape and form of lithium fluoride single crystals. LiF crystals were grown from the melt in a nitrogen atmosphere by adjusting the temperature, rotation speed and pulling speed parameters. The grown crystals were analysed using X-ray diffraction, X-ray Laue diffraction, Raman spectroscopy, FT-IR and UV-VIS spectroscopy. The process of optimising the parameters was successful, and LiF single crystals were successfully grown using our Czochralski equipment at the optimised single crystal growth parameters.

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