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Investigation of surface layer of polished LiYF₄ single crystal

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Abstract

Optical microscopy, measurements of microhardness, and electron backscattering have been used to investigate the surface of an LiYF₄ single crystal. The depth of the deformed layer after mechanical polishing was found to be 30 μm. In layer-by-layer etching of the crystal, the best results were obtained using KOH at 60°. A surface with a structure close to that of the matrix was obtained by mechanical polishing combined with chemical and ion-beam etching.
