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## **Real-time qualitative study of forsterite crystal – melt lithium distribution by laser-induced breakdown spectroscopy**

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### **Abstract**

A factor of lithium distribution between single-crystal forsterite (Cr,Li:Mg<sub>2</sub>SiO<sub>4</sub>) and its melt are studied by laser-induced breakdown spectroscopy. Lithium content in the crystalline phase is found to achieve a saturation at relatively low Li concentration in the melt (about 0.02 %wt.). An algorithm and software are developed for real-time analysis of the studied spectra of lithium trace amounts at wide variation of the plasma radiation intensity. The analyzed plasma spectra processing method is based on the calculation of lithium emission part in the total emission of the target plasma for each recorded spectrum followed by the error estimation for the series of measurements in the normal distribution approximation.

Keywords: LIBS, Lithium, Forsterite, Real-time analysis.

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