Lithuanian chemists conference

Chemistry & Chemical Technology

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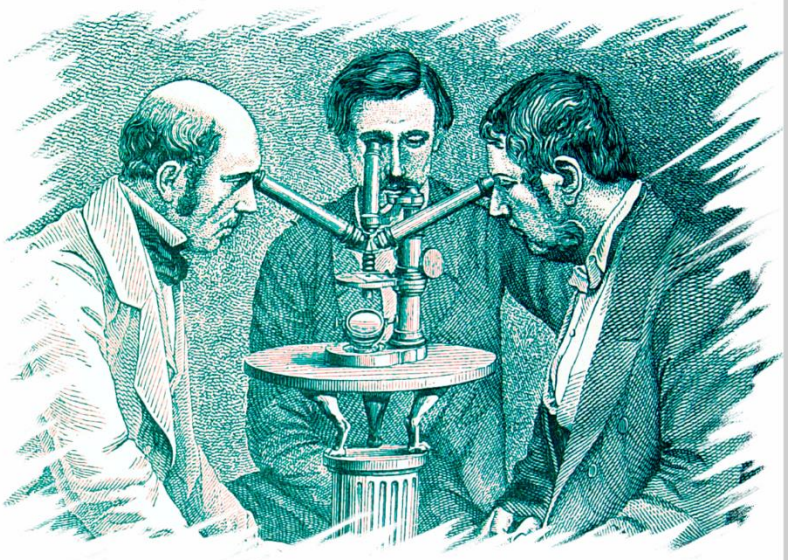

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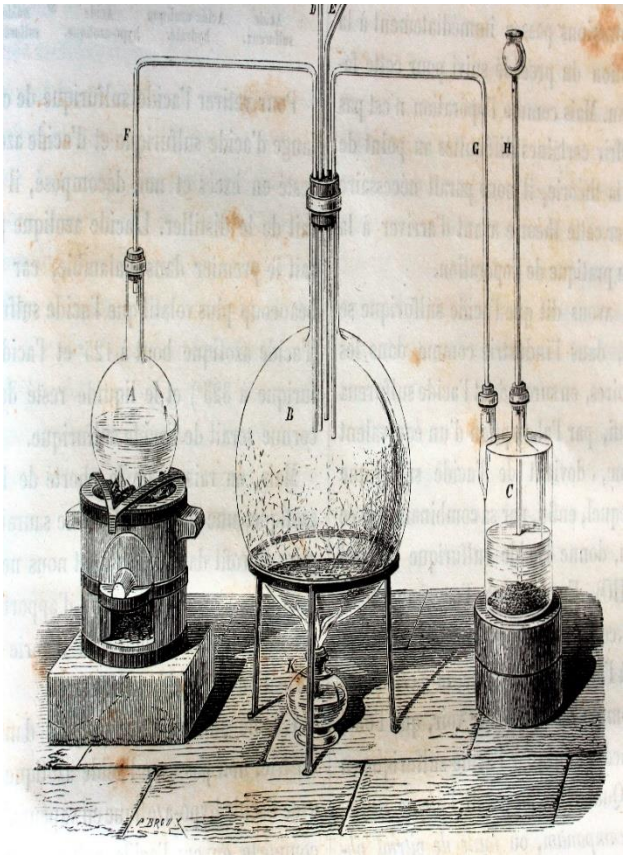

LUMINESCENCE OF Eu(II) DOPED AND Dy(III) CODOPED SrAl4O7

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Strontium aluminate $SrAl_4O_7$ structure is monoclinic with space group *C2/c* (No. 15) and having cell parameters a=13.04, b=9.01, c=5.55 and β=106.502° [1]. It also has high-pressure form called β-$SrAl_4O_7$ [2]. Compared to other strontium aluminates (i.e. $SrAl_2O_4$, $Sr_3Al_2O_6$, $SrAl_{12}O_{19}$ and $Sr_4Al_{14}O_{25}$), it has less information published in scientific literature. Capron and Douy described synthesis of $SrAl_4O_7$ from a spray-dried amorphous precursor, and specified its stability domains [3]. $SrAl_4O_7$ has the elemental composition close to that of $Sr_4Al_{14}O_{25}$ and the formation of latter is favored at the detriment of $SrAl_4O_7$. Research showed that kinetics of formation is very low and thus crystallization of $SrAl_4O_7$ is sensitive to the heating rate [3].

The current study aims on expanding the knowledge related to strontium aluminates in perspective of persistent phosphors. The goal of this research was to prepare phase pure $SrAl_4O_7$ and to investigate its luminescent properties when strontium aluminate is doped with europium and codoped with dysprosium.

During this work, a series of europium doped and dysprosium codoped $SrAl_4O_7$ samples were prepared using conventional solid-state synthesis method. Obtained powder materials were characterized using X-ray diffraction analysis and data was analyzed using structural refinement method to determine crystal structure properties, such as unit cell parameters. Luminescence measurements were carried out to record excitation and emission spectra.

Acknowledgement

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