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Combustion Synthesis of Some Cr^{3+}-Activated Aluminate Phosphors

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Luminescence of Cr^{3+} is important in context of solid state lasers as well as studies on precious stones. Several such luminescent materials are based on aluminates. We have exploited the fact that aluminate powders can be easily prepared by combustion synthesis for exploring new phosphors based on aluminates. Results of this investigation are reported here. Luminescence of Cr^{3+} in hitherto unexplored $Li_2Al_4O_7$, $NaAl_7O_{11}$, $Na_2MgAl_{10}O_{17}$, KAl_5O_8 is reported for the first time. All these phosphors exhibit characteristic line emission around 700 nm and broad-band excitation in nUV-visible region.

Keywords: photoluminescence, phosphor, aluminate, NIR, Cr^{3+}.