

# A New Absorption Band of Ti-Doped $\text{Al}_2\text{O}_3$ Crystals after Thermal Annealing and $\gamma$ -Irradiation

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$\text{Al}_2\text{O}_3$  single crystals doped with titanium ions were grown by the Czochralski method in a pure  $\text{N}_2$  atmosphere. The titanium ion content reached up to 0.08 – 0.1 wt%. After thermal annealing and  $\gamma$ -irradiation, the optical absorption spectra were measured at room temperature for samples of high optical quality. Many previously reported absorption spectra of  $\text{Al}_2\text{O}_3:\text{Ti}^{3+}$  have a distinct double-peak shape in the visible region. However, the absorption spectra in this work present three peaks at 480 nm, 500 nm, and 550 nm. The triple-peak shape absorption bands in the visible region are reported for the first time. The reason for forming a triple-peak in the absorption spectra is discussed. – PACS numbers: 78.40.Ha, 78.30.Hv, 71.70.Ch

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