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Type: **Poster Presentation**

The influence of Pr^{3+} co-doping on the photoluminescence and cathodoluminescence properties of $\text{SiO}_2:\text{Eu}^{3+} / \text{Tb}^{3+}$.

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$\text{Pr}^{3+}\text{-Tb}^{3+}$, and $\text{Pr}^{3+}\text{-Eu}^{3+}$ ion pairs co-doped in SiO_2 matrix were prepared by a sol-gel method. The photoluminescence (PL) measurements revealed the red and green emissions centred at 614 nm ($5\text{D}_0\text{-}7\text{F}_2$) and 541 nm ($5\text{D}_4\text{-}7\text{F}_5$) for single doped Eu^{3+} and Tb^{3+} ions in SiO_2 , respectively. Co-doping of Eu^{3+} and Tb^{3+} ions with Pr^{3+} in SiO_2 showed that the energy transfer between Pr^{3+} and nearest Eu^{3+} and Tb^{3+} ions takes place. At the same time, however, there was evidence of luminescence quenching of Eu^{3+} and Tb^{3+} emissions at certain concentrations of Pr^{3+} . The quenching was also confirmed by cathodoluminescence (CL) measurements recorded from the same powders. Possible mechanism of energy transfer from Pr^{3+} to Eu^{3+} and Tb^{3+} and its quenching effects are discussed.

**Level (Hons, MSc,
 PhD, other)?**

PhD

**Consider for a student
 award (Yes / No)?**

NO

**Would you like to
 submit a short paper
 for the Conference
 Proceedings (Yes / No)?**

YES

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