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Photoluminescence properties of terbium-doped tin-oxide quantum dots CHRISTIE LAROCHELLE, REBECCA SOBEL, Franklin & Marshall College — Tb^{3+}-doped SnO_2 quantum dots embedded in an SiO_2 glass matrix have been synthesized using a sol-gel technique. The optical properties of a series of these samples with constant Tb^{3+} concentrations, but increasing SnO_2 concentrations were studied to determine the effect of concentration on the size of the nanocrystals and the dynamics of energy transfer between the SnO_2 donor and the Tb^{3+} impurity ions. X-ray diffraction and TEM results confirm the presence of nanocrystals of less than 10 nm in diameter while photoluminescence results indicate that the Tb^{3+} ions are indeed incorporated into a crystalline environment.

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