# Rare Earth Site Preference in the Doped Laser Host Material $Sc_2SiO_5$. A Single-Crystal X-Ray Study

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*Z. Naturforsch.* **2012**, *67b,* 113 – 117; received January 17, 2012

Single crystals of the laser host material $Sc_2SiO_5$ as well as thulium- (4 at.-%) and ytterbium- (5 at.-%) doped samples were prepared by the Czochralski technique. The structures of $Sc_2SiO_5$, $Tm^{3+}$:$Sc_2SiO_5$, and $Yb^{3+}$:$Sc_2SiO_5$ were refined on the basis of high-quality single-crystal X-ray diffraction data: monoclinic $Y_2SiO_5$ type, space group $C2/c$. The X-ray data unambiguously show that the larger rare earth cations exclusively occupy the $8f$ site with oxygen coordination number 7.

*Key words:* Crystal Structure, Scandium Silicate, Rare Earth Doping, Laser Material