Electron Density in Ga doped RTP

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Rubidium titanyl phosphates, RbTiOPO4 (RTP) and isostructural compounds are well known for their non-linear optical properties. The properties may be varied by inclusion and/or replacement of rubidium, titanium and phosphorous by other elements. Some other characteristics like high optical damage thresholds and wide transparency windows are also beneficial for choosing these materials in optical applications.

Crystals were grown from a self-flux which was modified with addition of Ga_2O_3. Single crystals of good quality were obtained and the sizes range from a few microns up to approx 3 mm.

The crystals were structurally investigated using X-ray diffraction and neutron diffraction. The chemical composition was determined from SEM-EDX and measurements with SIMS were made for depth profile analysis of the crystals.

Keywords: electron-density, nonlinear materials, ferroelectric material