

Figure 1. Rietveld fit achieved to the  $\text{Sm}_{1.92}\text{Ca}_{0.08}\text{Ti}_2\text{O}_{7-\delta}$  using a  $Fd-3m$  structural model. Crosses are observed data points, upper line the calculated diffraction profile and lower line is the difference between observed and calculated intensities. Tick marks indicate the positions of reflections from the pyrochlore phase. Fit parameters,  $R_{\text{wp}} = 7.06\%$ ,  $R_p = 5.30$ ,  $\chi^2 = 1.24$  for 13 variables, 4716 data points.

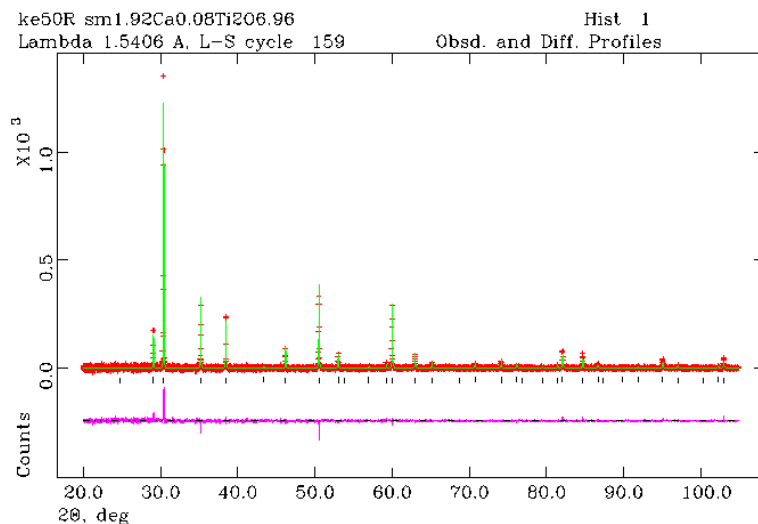


Figure 2. SEM images from the surface of as-prepared sintered pellets of  $\text{Sm}_{1.92}\text{Ca}_{0.08}\text{B}_2\text{O}_{7-\delta}$  (B = Ti, Sn, Zr, Ce; a – d respectively). Typical grain sizes are in the range  $\sim 5\text{--}20\text{ }\mu\text{m}$ .

