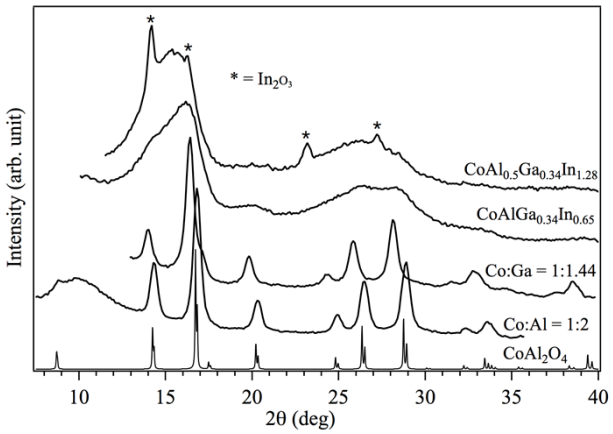
Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Supplementary Information



SI Fig. 1 Powder x-ray diffraction patterns for $CoAl_2O_4$ (with literature[14]), $Co_{1.56}Ga_{1.44}O_4$, $CoAl_{0.5}Ga_{0.34}In_{1.28}O_4$, $CoAlGa_{0.34}In_{0.65}O_4$. The well known $CoAl_xO_4$ and $CoGa_xO_4$ phases[14,15] exhibit the spinel structure with variable Al or Ga content when $x \leq 2$ and are fully miscible, e.g. $Co_{3-x}(Al,Ga)_xO_4$. The expected lattice expansion is observed upon addition of Ga. The incorporation of 22 cation % In (upper middle pattern) disorders the lattice and only broad diffraction humps are observed (the broad peak near 16° is due to the fused silica fiber and the vacuum grease used to support the powder crystals). The upper most pattern contains 41 cation % In and phase segregated In_2O_3 is detectable.