

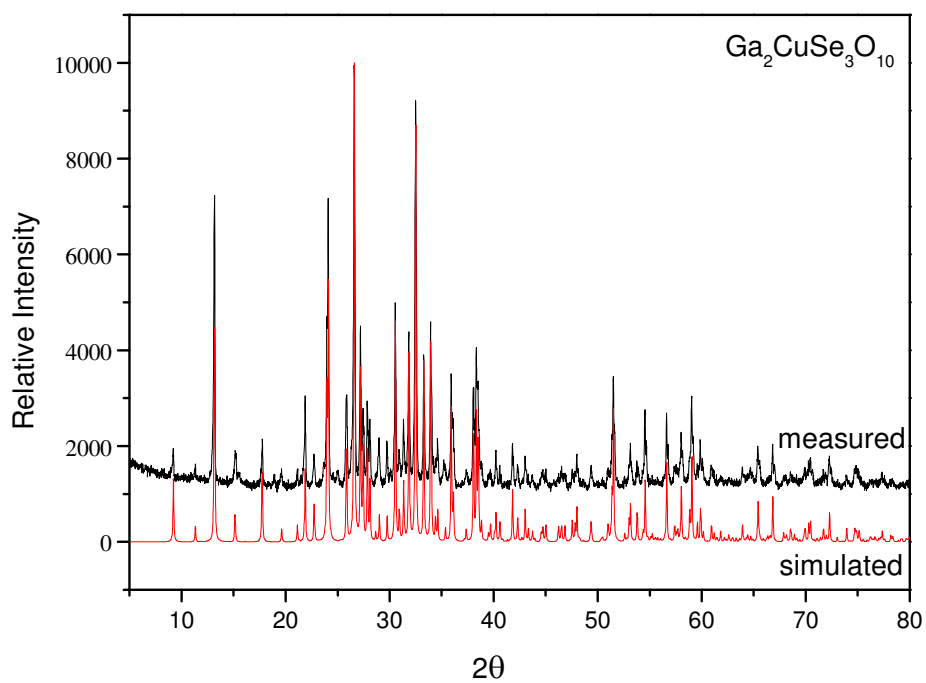
# Explorations of New phases in the Ga<sup>III</sup>/In<sup>III</sup>-Cu<sup>II</sup>-Se<sup>IV</sup>-O System

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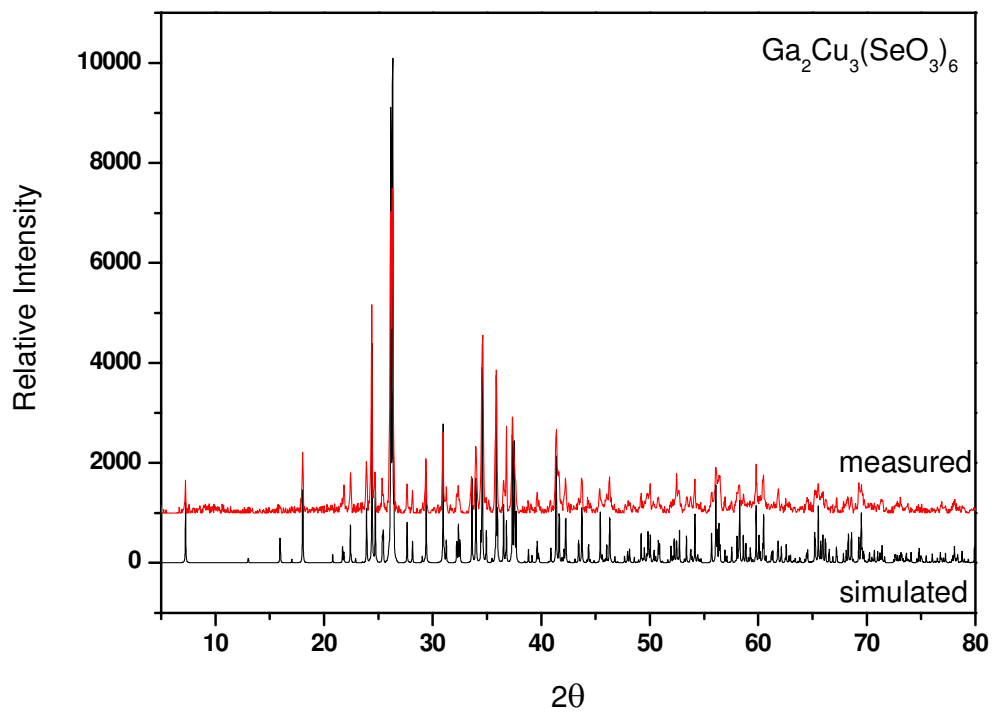
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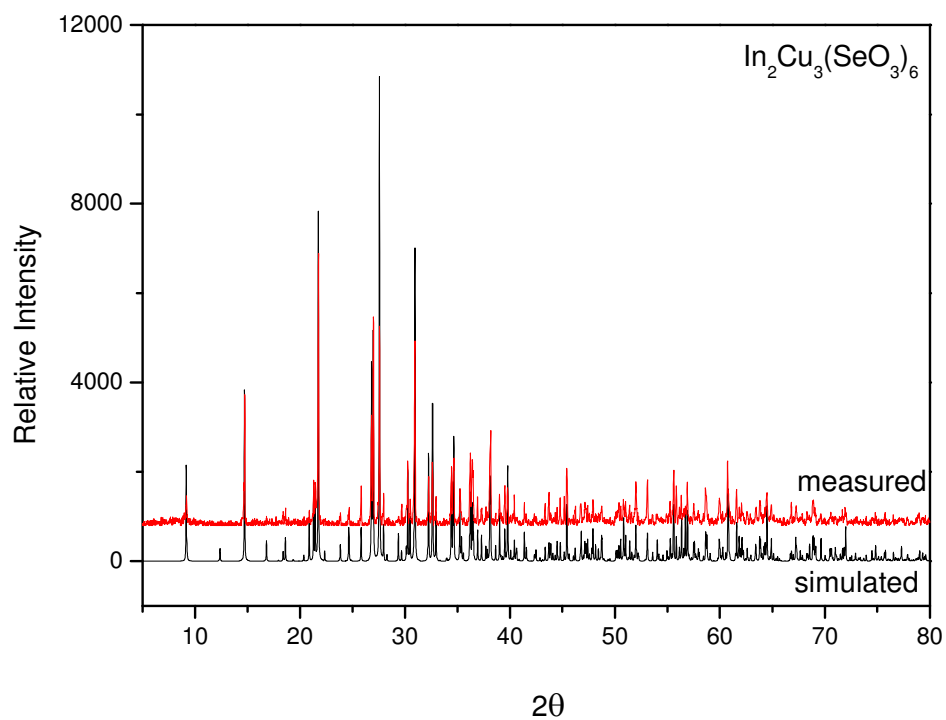
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(a)



(b)



(c)

Figure S1. Simulated and measured XRD powder patterns for  $\text{Ga}_2\text{CuO}(\text{SeO}_3)_3$  (a),  $\text{Ga}_2\text{Cu}_3(\text{SeO}_3)_6$  (b) and  $\text{In}_2\text{Cu}_3(\text{SeO}_3)_6$  (c).

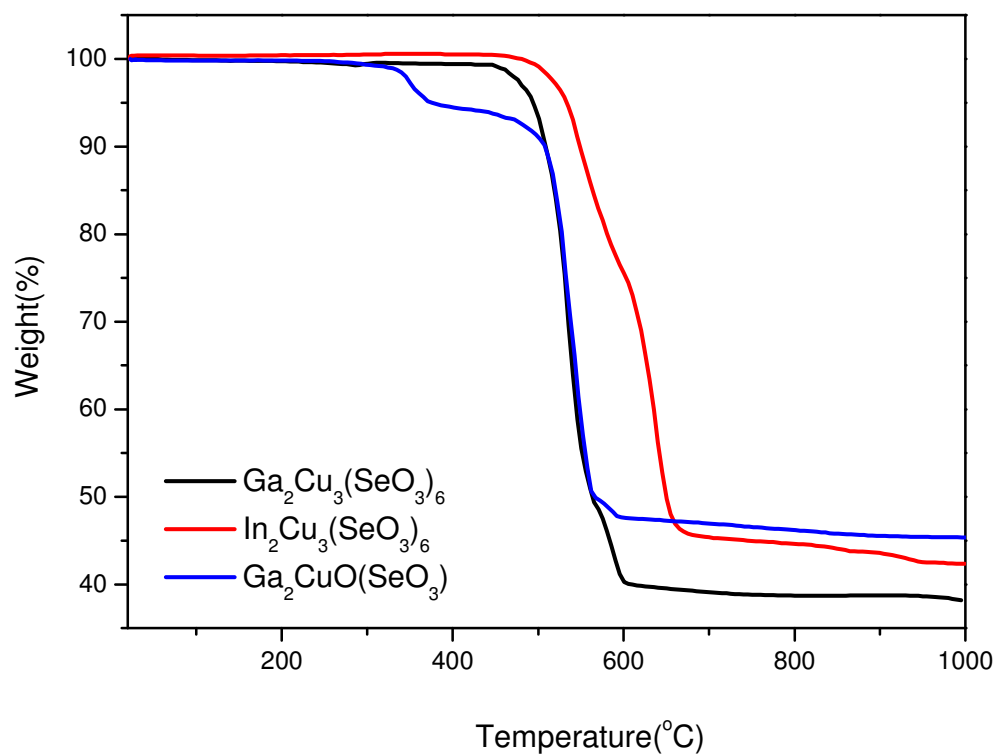
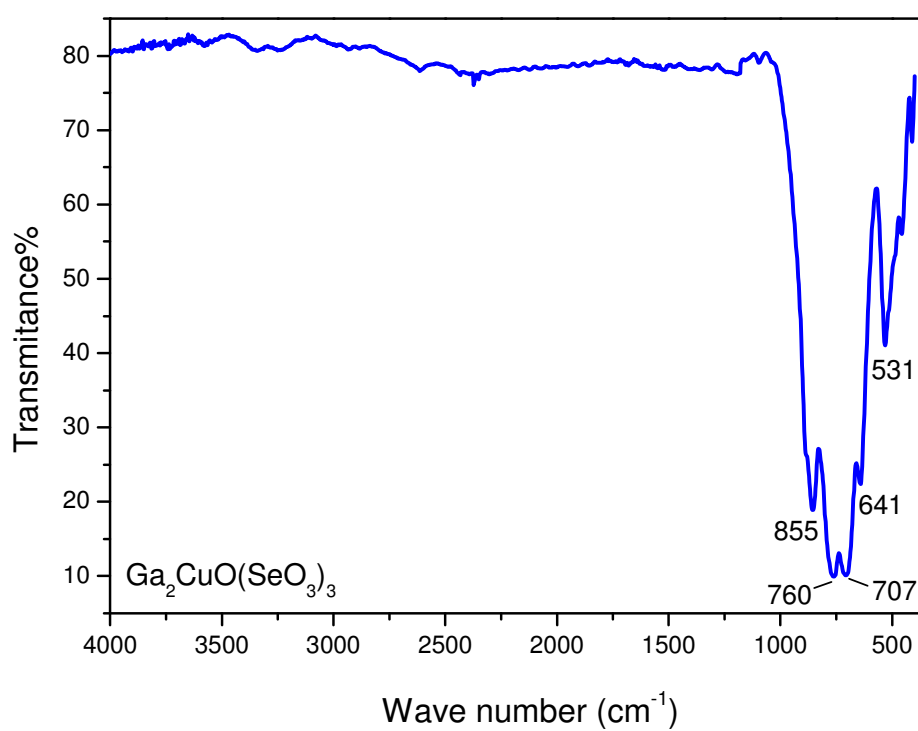
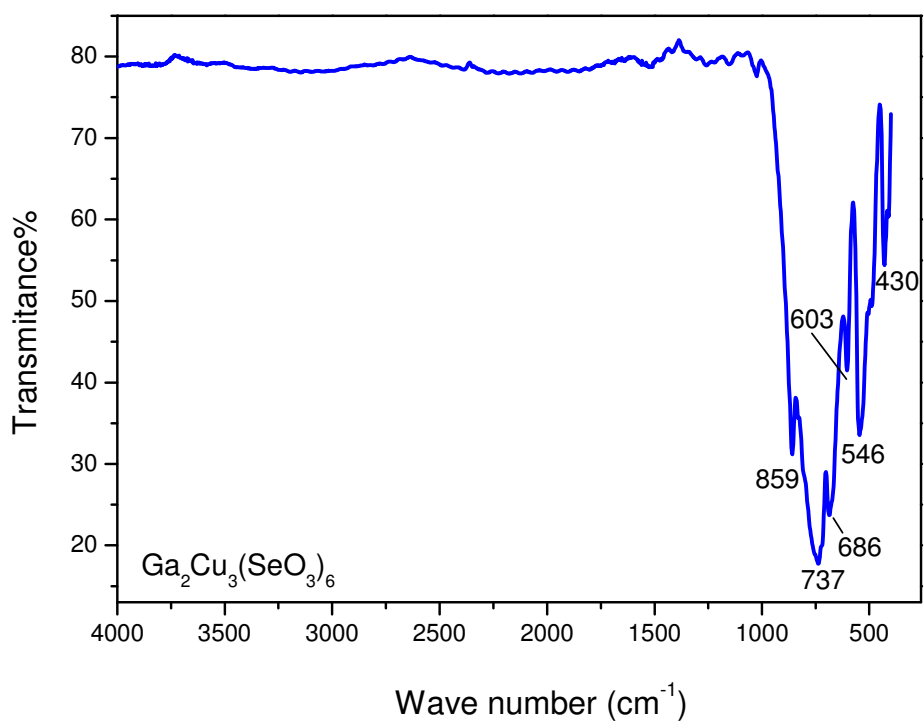


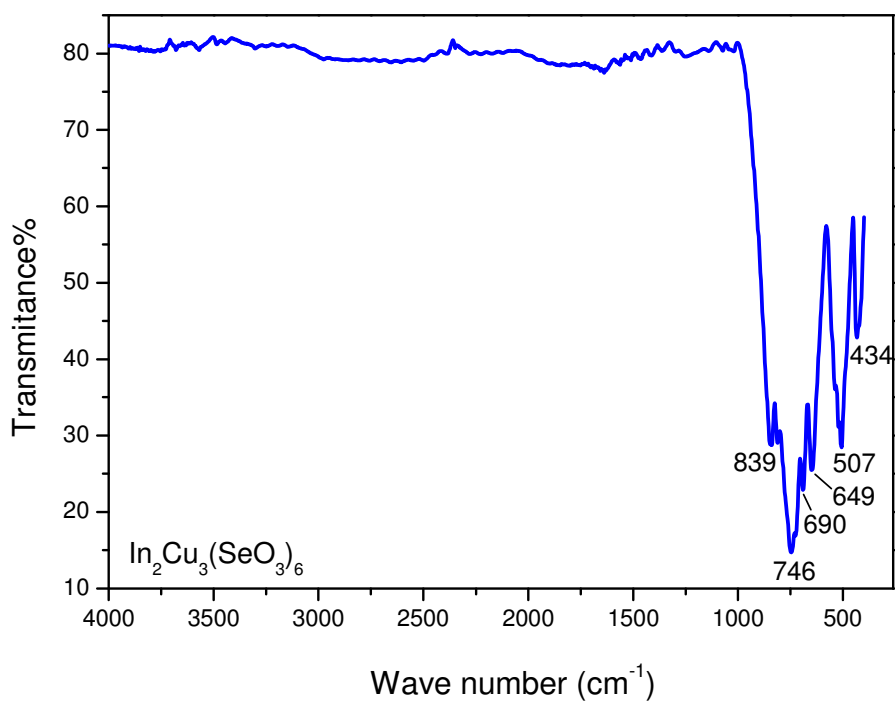
Figure S2. TGA curves of  $\text{M}_2\text{Cu}_3(\text{SeO}_3)_6$  (M = Ga, In) and  $\text{Ga}_2\text{CuO}(\text{SeO}_3)_3$ .



(a)



(b)



(c)

Figure S3. IR spectra for  $\text{Ga}_2\text{CuO}(\text{SeO}_3)_3$  (a),  $\text{Ga}_2\text{Cu}_3(\text{SeO}_3)_6$  (b) and  $\text{In}_2\text{Cu}_3(\text{SeO}_3)_6$  (c).

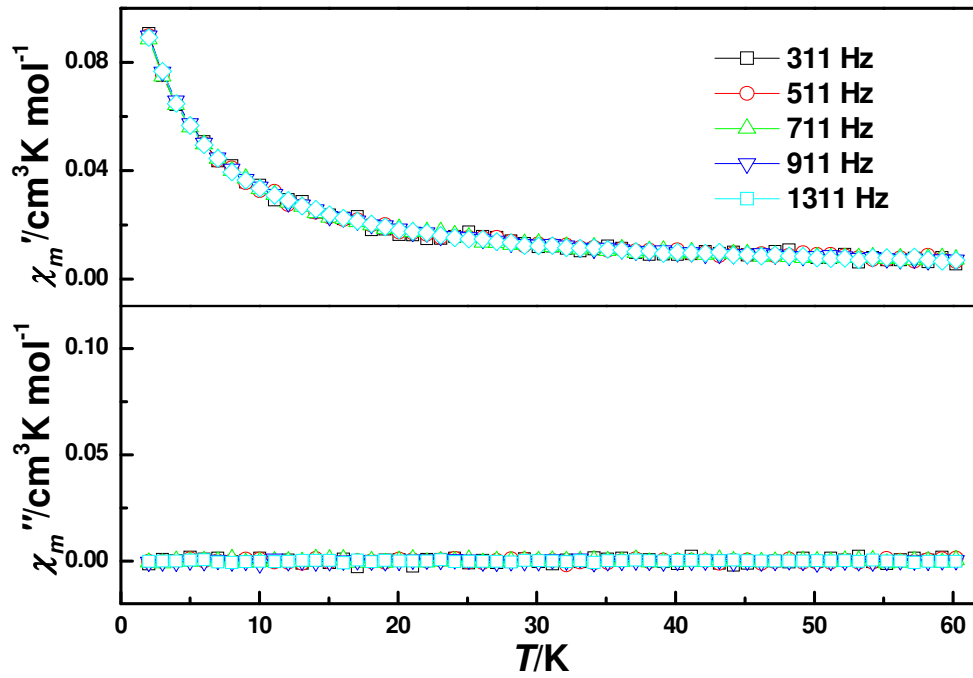


Figure S4. Temperature dependence of ac magnetic susceptibilities at different frequencies for  $\text{In}_2\text{Cu}_3(\text{SeO}_3)_6$ .

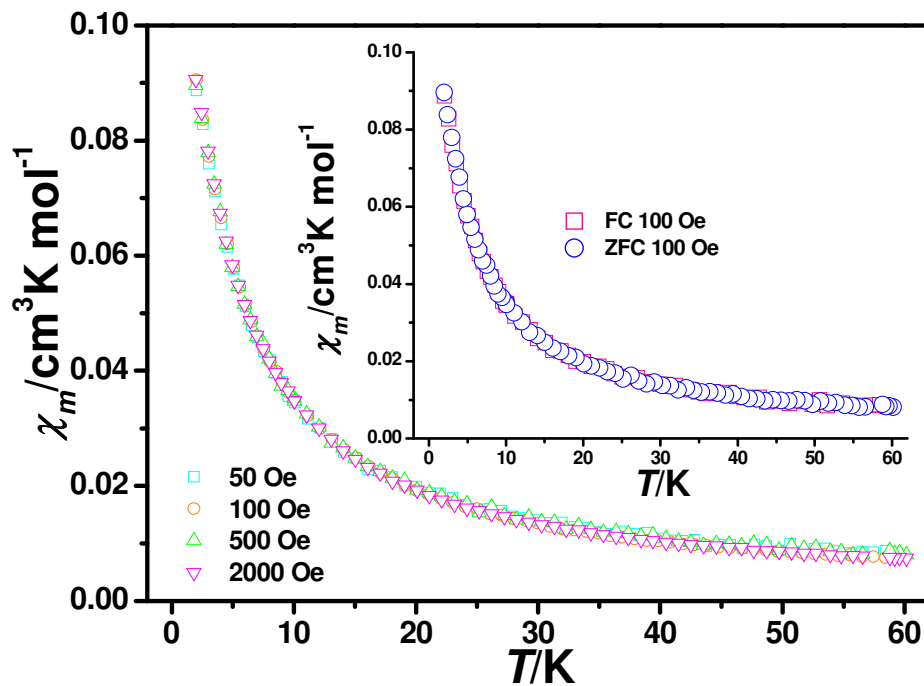


Figure S5. Temperature dependence of  $\chi_M$  at different fields for  $\text{In}_2\text{Cu}_3(\text{SeO}_3)_6$ . The inset is the zero-field-cooled (ZFC) and field-cooled (FC) magnetization.