

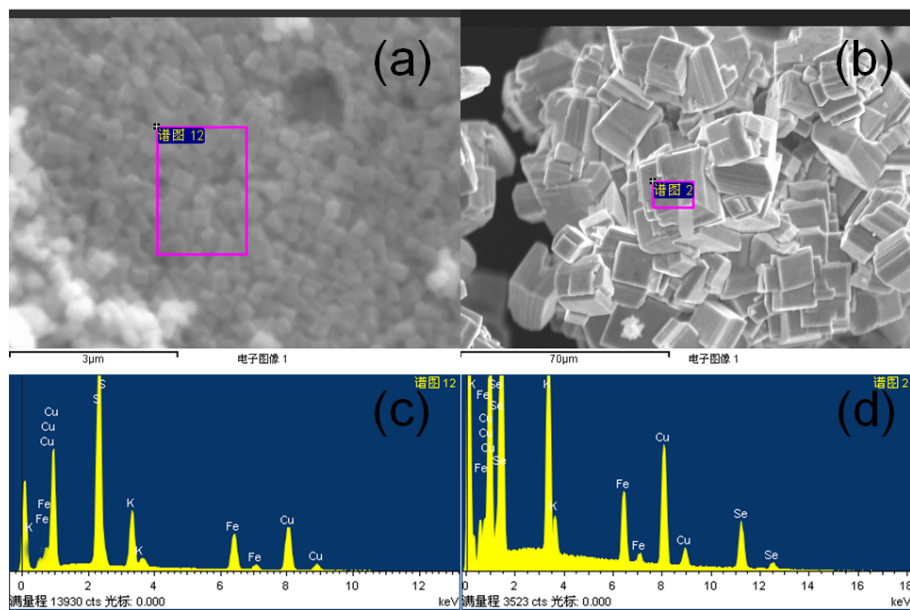
Supplementary information for:

**Facile synthesis, magnetic, electrical and photoelectric properties of layered quaternary chalcogenides  $K_2FeCu_3Q_4$  (Q = S and Se)**

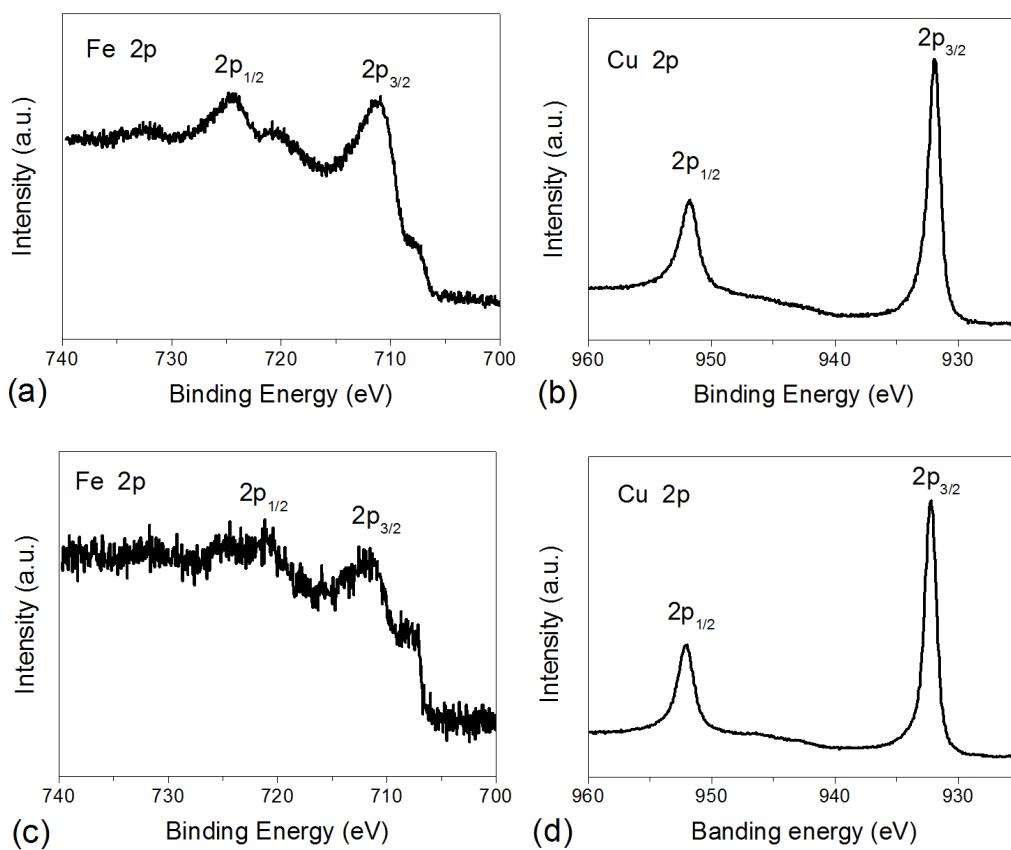
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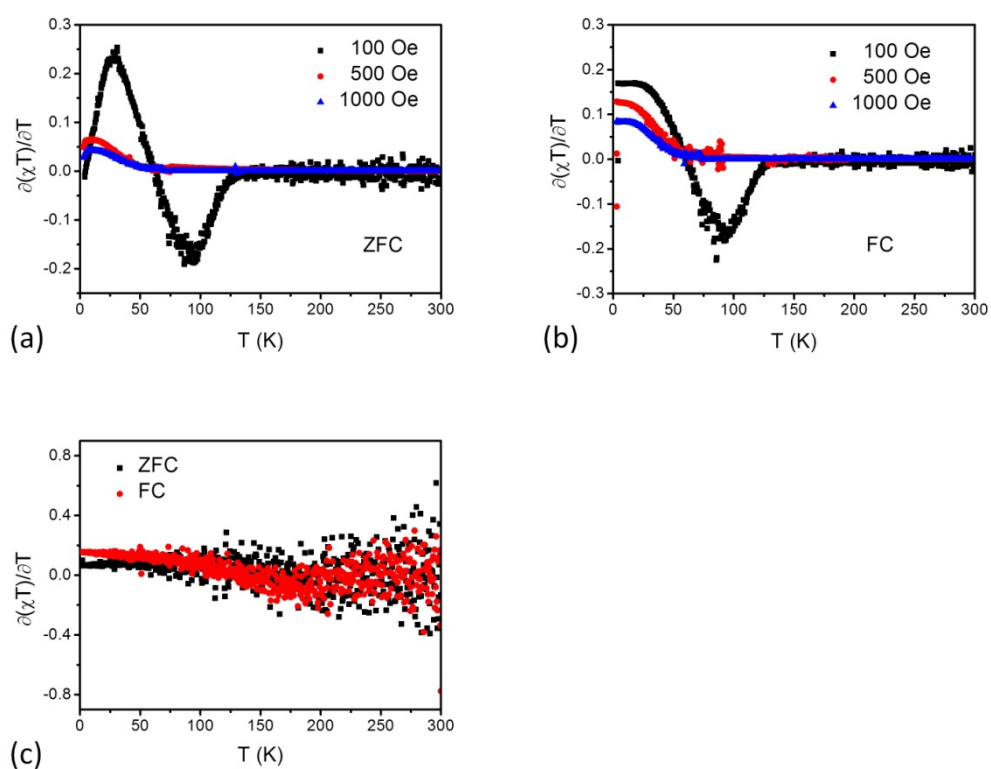
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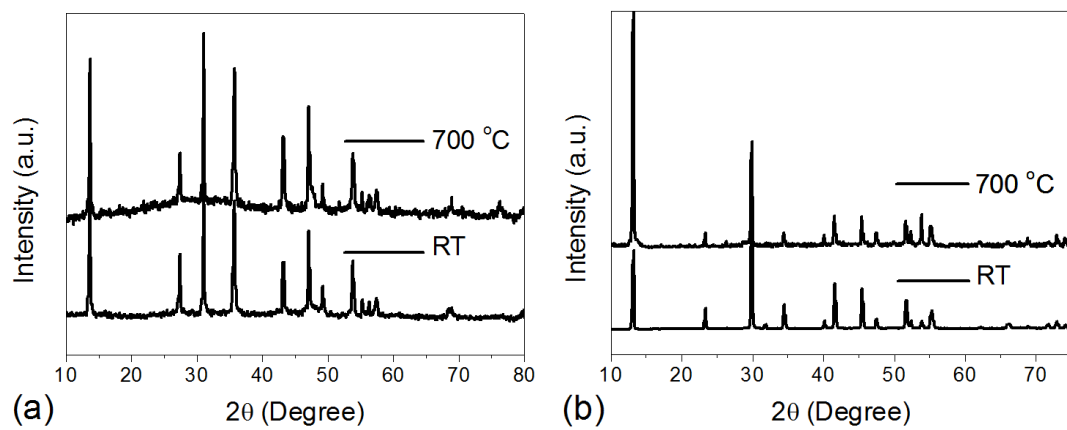
**Figure S1.** SEM images of crystalline samples: (a) for  $\text{K}_2\text{FeCu}_3\text{S}_4$  and (b) for  $\text{K}_2\text{FeCu}_3\text{Se}_4$ . EDX results of  $\text{K}_2\text{FeCu}_3\text{S}_4$  (c) and  $\text{K}_2\text{FeCu}_3\text{Se}_4$  (d).



**Figure S2.** XPS spectrum of Fe 2p and Cu 2p: (a) (b) for  $K_2FeCu_3S_4$  and (c) (d) for  $K_2FeCu_3Se_4$ .



**Figure S3.** The derivative of the curves  $\chi T$  vs.  $T$  for  $K_2FeCu_3S_4$  (a and b) and  $K_2FeCu_3Se_4$  (c).



**Figure S4.** The powder XRD of  $K_2FeCu_3S_4$  (a) and  $K_2FeCu_3Se_4$  (b) samples annealed at room temperature (RT) and  $700\text{ }^\circ\text{C}$