Electronic Supporting Information

The p-n transformation and thermoelectric property optimization for $Cu_{1+x}FeSe_2$ (x=0-0.05) alloys

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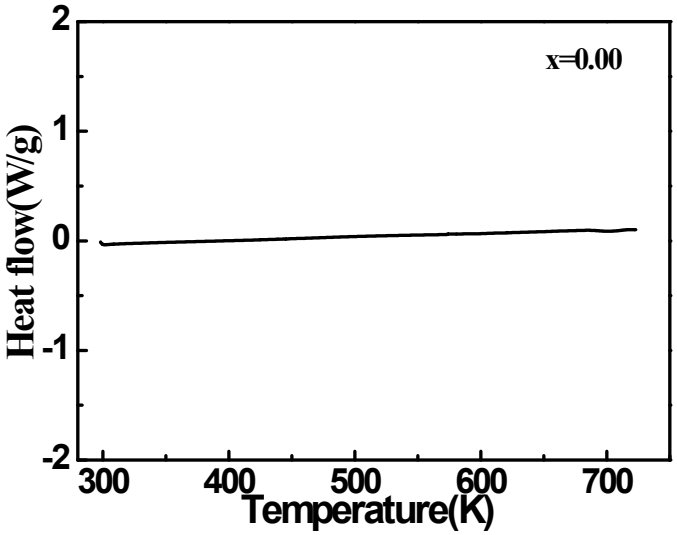
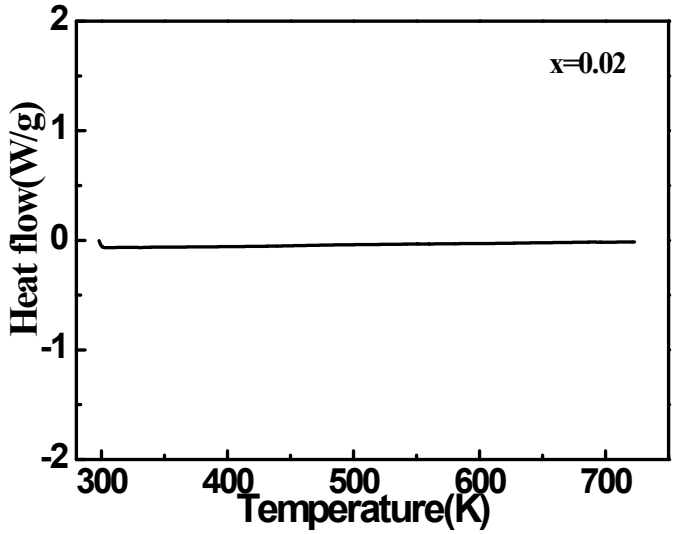
Table S1. The theoretical, experimental and relative densities for all $Cu_{1+x}FeSe_2$ samples.

x	0.00	0.01	0.02	0.03	0.05
Theoretical density	**5.544**	**5.545**	**5.562**	**5.548**	**5.553**
Experimental density	**5.413**	**5.195**	**5.159**	**5.212**	**5.060**
Relative density	**98%**	**94%**	**93%**	**93%**	**91%**

Table S2. The Goldsmid-Sharp band gaps for all $Cu_{1+x}FeSe_2$ samples.

x	0.00	0.01	0.02	0.03	0.05
E_{GS}(eV)	**0.17**	**0.17**	**0.18**	**0.19**	**0.16**


x=0.00
Heat flow(W/g)
Temperature(K)
2
1
0
-1
-2
300
400
500
600
700


x=0.02
Heat flow(W/g)
Temperature(K)
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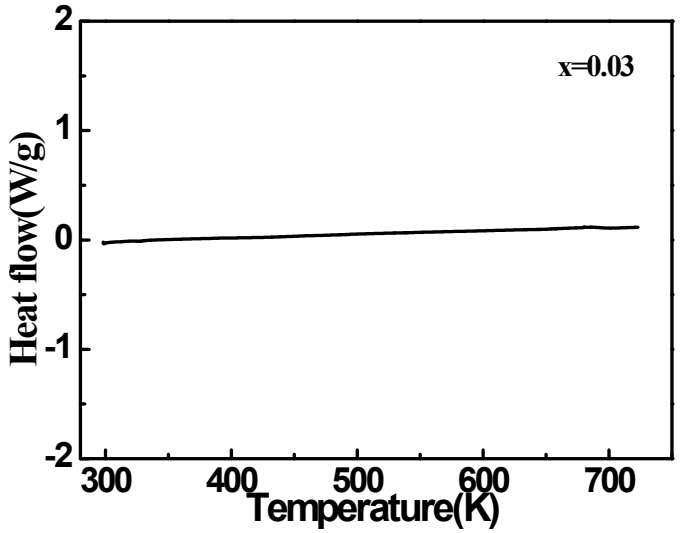
-1
-2
300
400
500
600
700


x=0.03
Heat flow(W/g)
Temperature(K)
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0
-1
-2
300
400
500
600
700

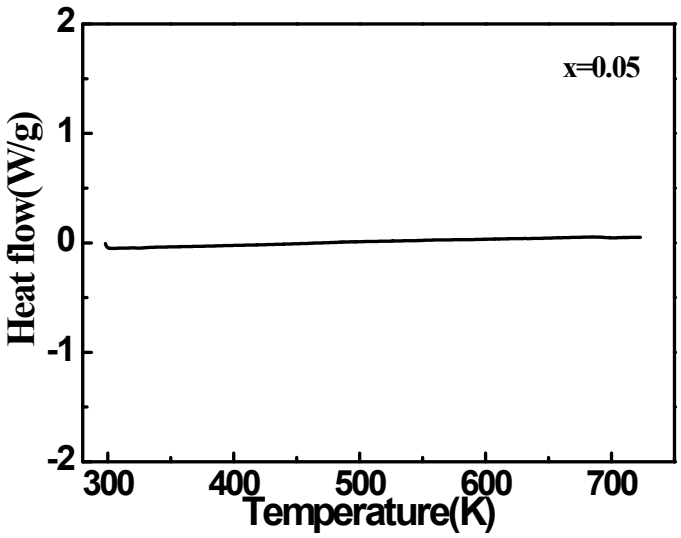

Figure S1. DSC data of $Cu_{1-x}FeSe_2$ (x=0.00, 0.02, 0.03 and 0.05) in temperature range of 300K-723K under N_2 atmosphere.