

Electronic Supplementary Information (ESI) for the paper

**Manipulation with natural mineral chalcopyrite CuFeS<sub>2</sub> via mechanochemistry:  
properties and thermoelectric potential**

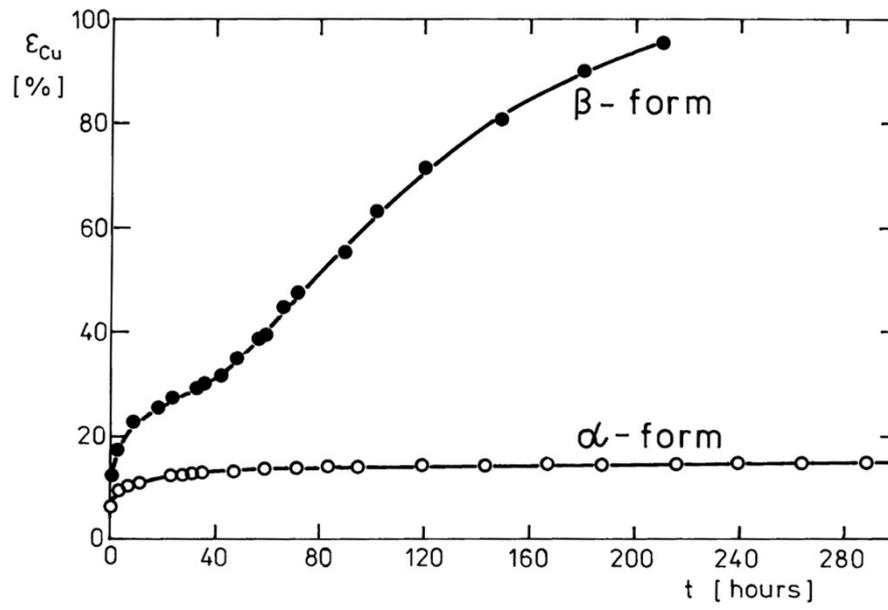
Peter Baláž<sup>a</sup>, Erika Dutková<sup>\*a</sup>, Matej Baláž<sup>a</sup>, Nina Daneu<sup>b</sup>, Lenka Findoráková<sup>a</sup>, Jiří Hejtmánek<sup>c</sup>,  
Petr Levinský<sup>c</sup>, Karel Knížek<sup>c</sup>, Mária Bali Hudáková<sup>a</sup>, Róbert Džunda<sup>d</sup>, Radovan Bureš<sup>d</sup> and  
Viktor Puchý<sup>d</sup>

<sup>a</sup>Institute of Geotechnics, Slovak Academy of Sciences, Watsonova 45, 04001 Košice, Slovakia; balaz@saske.sk (P.B.); dutkova@saske.sk (E.D.); balazm@saske.sk (M.B.), findorakova@saske.sk (L.F.); krulakova@saske.sk (M.B.H.)

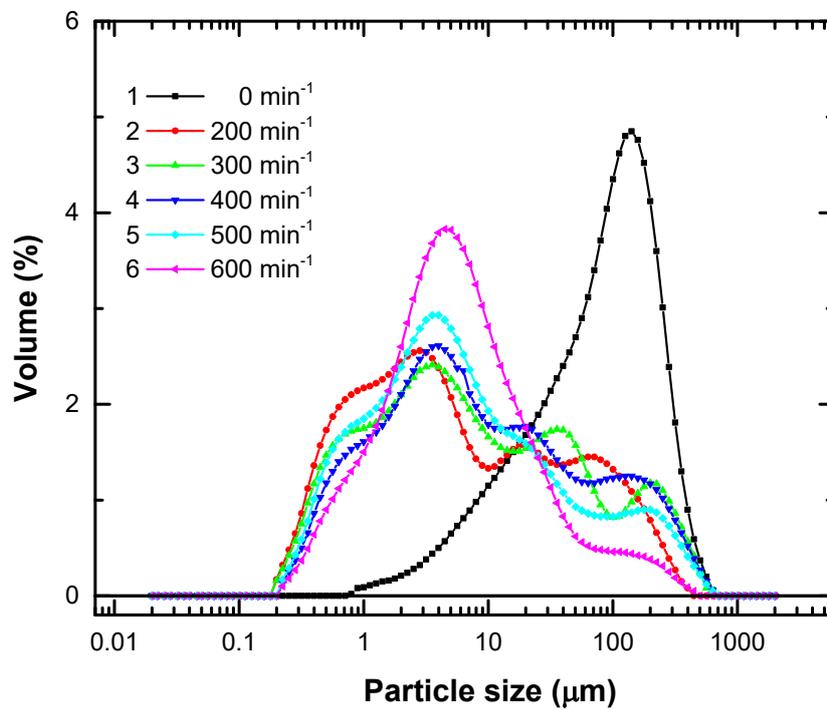
<sup>b</sup>Jozef Stefan Institute, Jamova cesta 3, S1-1000 Ljubljana, Slovenia; nina.daneu@ijs.si (N.D.)

<sup>c</sup>Institute of Physics of the Czech Academy of Sciences, Cukrovarnická 10/112, 16200 Prague, Czech Republic; hejtman@fzu.cz (J.H.); levinsky@fzu.cz (P.L.); knizek@fzu.cz (K.K.)

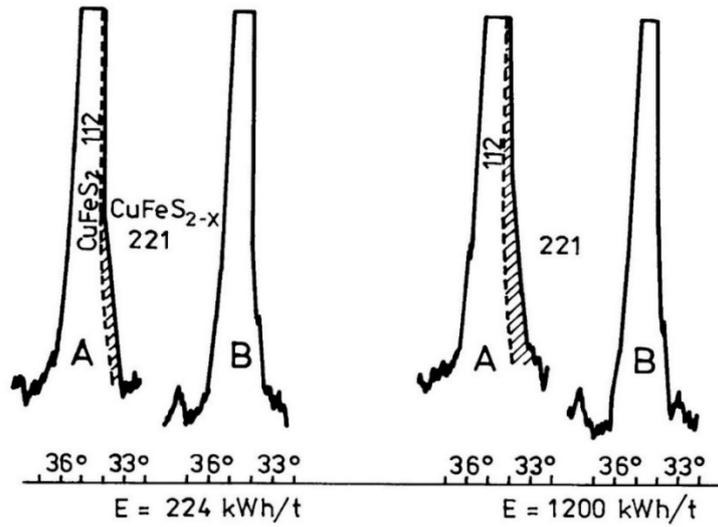
<sup>d</sup>Institute of Materials Research, Slovak Academy of Sciences, Watsonova 47, 04001 Košice, Slovakia; rdzunda@saske.sk (R.DŽ.); rbures@saske.sk (R.B.); vpuchy@saske.sk (V.P.)



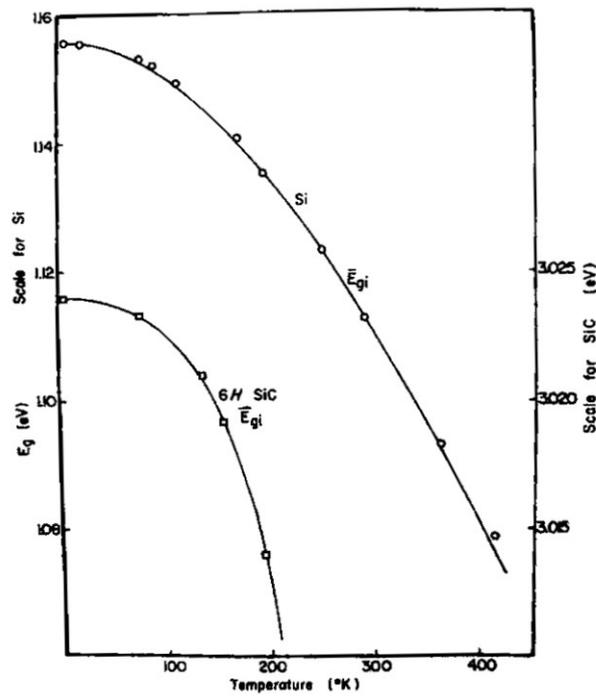
**Fig. S1** Comparison of copper acid leaching,  $\epsilon_{Cu}$  for leaching of  $\alpha$ - and  $\beta$ -chalcopyrite,  $t$ -leaching time (in Baláž <sup>1</sup>)



**Fig. S2** Particle size analysis for mechanically activated chalcopyrite  $CuFeS_2$ .



**Fig. S3** XRD patterns of  $\alpha$ - and  $\beta$ - forms of mechanically activated chalcopyrite, A:  $\alpha$  - chalcopyrite (112) and  $\beta$  - chalcopyrite (221), B:  $\alpha$  - chalcopyrite (112) (in Gock<sup>2</sup>).



**Fig. 2.** Silicon and 6H SiC.

**Fig. S4** Bandgap,  $E_g$  dependence on temperature,  $T$  for Si and 6H SiC (in Varshni<sup>3</sup>)

## References

1. P. Baláž, Extractive Metallurgy of Activated Minerals. Elsevier, Amsterdam, 2000.
2. E. Gock, Habilitationsschrift, Technical University Berlin, 1977 (in German), 1977.
3. Y. O. Varshni, Physica (Amsterdam) 1967, **34**, 149-154.