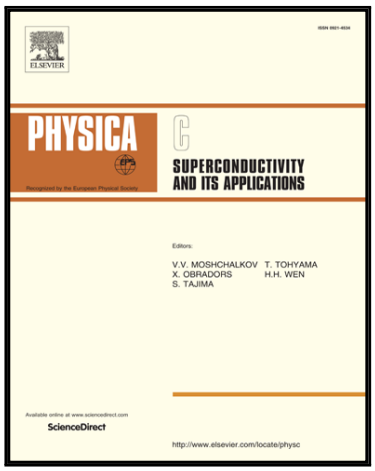

First principles predictions of electronic and elastic properties of $BaPb_2As_2$ in the $ThCr_2Si_2$-type structure

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PII: S0921-4534(17)30432-X
DOI: 10.1016/j.physc.2017.10.013
Reference: PHYSC 1253207

To appear in: *Physica C: Superconductivity and its applications*

Received date: 28 August 2017
Revised date: 18 October 2017
Accepted date: 26 October 2017

Please cite this article as: Y. Bourourou , S. Amari , I.E Yahiaoui , B. Bouhafs , First principles predictions of electronic and elastic properties of $BaPb_2As_2$ in the $ThCr_2Si_2$-type structure, *Physica C: Superconductivity and its applications* (2017), doi: 10.1016/j.physc.2017.10.013

Highlights

- The equilibrium lattice parameter *a* agree well with the experimental data while the *c/a* ratio is far away from the experiment.
- The calculated elastic constants suggest that $BaPb_2As_2$ is very soft material and mechanically stable.
- The $BaPb_2As_2$ can be classified as ductile since B/G is larger than 1.75 and υ is larger than 0.25.