## Behavior of Structural Metastability in Nanocrystalline FeS

Wei Gao, Qiliang Cui, Guangtian Zou

National Lab of Superhard Materials, Jilin University, Changchun 130012, P.R.China Email: <u>gwei@jlu.edu.cn</u>

Iron sulfide (FeS) has attracted great interest in recent years because it is an important material for the Earth and space science. Nanocrystalline FeS coated with polyvinyl alcohol (PVA) is prepared from FeCl<sub>2</sub> and Na<sub>2</sub>S aqueous solution via the chemical precipitation synthesis process. We find that crystal structure of nanocrystalline FeS prepared by this method is similar to the high-pressure phase of its bulk materials at high pressure around 6 GPa. This phenomenon can be explained by comparing the energetic height of nanocrystalline FeS in microcosmic mechanisms with that of bulk material. And energetic height in transition pressure was influenced by crystal size. This suggests that nanocrystalline FeS has a metastable, high-energy structure.

References

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