**High-temperature Superconductivity of Cerium Polyhydrides under High Pressure**

**Xiaoli Huang**

*High pressure and State Key Laboratory of Superhard Materials, College of Physics, Jilin University,*

*Changchun 130012, China*

Corresponding email:huangxiaoli@jlu.edu.cn

As compressed hydrides constantly refresh the records of superconducting critical temperatures (*T*c) in the vicinity of room temperature, this further reinforces the confidence to find more high-temperature superconducting hydrides. Dias et al. has successively reported two room-temperature superconducting hydrides: C-S-H system with *T*c-287 K at 267 GPa, and Lu-N-H system with *T*c-294 K at 1 GPa, which have been retracted by Nature journal and has cast great doubt on experimental research into hydride superconductors. At the same time, Prof. Hirsch from University of California has been questioning the experimental measurement data of the Meissner effect of reported hydride superconductors.

In this context, there are key scientific questions that need to be solved in the field of hydride superconductors, especially reliable experimental evidence for the Meissner effect of hydride superconductors, and the experimental evidence of conventional superconductors. We have discovered several new binary hydride superconductors by using high pressure experimental techniques. Interestingly, CeH10 has a superconducting transition temperature of 115 K at 95 GPa, which is the highest one of the binary hydrides below 1 Megabar. Isotopic effect experiments show that cerium hydride superconductors belong to the traditional superconductors with electron-phonon coupling mechanism. The Meissner effect of superconducting cerium hydrides has been solid validated based on NV sensor technology, thus settling a long debate about hydride superconductors.

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