

2018 CALDES, IBS Special seminar

- ✓ **Date & Time** Thursday, September 13 at 3 pm
- ✓ **Venue** Lecture Room #201, Science building #3
- ✓ **Speaker** Dr. Xiao Jia Chen (HPSTAR, Center for High-Pressure Science and Technology Advanced Research)
- ✓ **Title** Pressure Bridge of Thermoelectricity and Superconductivity

Both thermoelectricity and superconductivity are two important phenomena for energy efficiency applications. Thermoelectric materials can directly generate electric power by converting waste heat, and the efficiency is appraised by the figure of merit. A high figure of merit larger than 3 is required to achieve comparable efficiency of the traditional heat engines. Here, we choose several semiconductors or semimetals as examples to show the extremely important role of pressure on both phenomena. The general increase of the figure of merit is realized in these materials by the application of pressure based on the newly developed high-pressure techniques. Meanwhile, superconductivity is induced in these materials upon further compression. The natural bridge connecting superconductivity and thermoelectricity is thus built. These findings not only demonstrate the remarkable role of pressure played in improving the performance of thermoelectric materials but also offer a new route for finding superconductors from highly efficient thermoelectric materials.

❖ Organized by Prof. Jun Sung Kim (js.kim@postech.ac.kr_054-279-2098)