Pressure Dependent Anomalous Phase Transition in Ternary Superconductor $Bi_2Rh_3Se_2$

C. Y. Cheng[a], C. L. Chan[a], C. L. Huang[a], Y. P. Chin[a], C. H. Chen[b], M. W. Chu[b], J. Y. Lin[c], and H. D. Yang*[a]

[a]Department of Physics, Center for Nanoscience and Nanotechnology, National Sun Yat-Sen University, Kaohsiung, 804 Taiwan.
[b]Center for Condensed Matter Sciences, National Taiwan University, Taipei 10617, Taiwan.
[c]Institute of Physics, National Chiao-Tung University, Hsinchu 300, Taiwan.

We report temperature dependent resistivity measurements (2-350 K) under pressure as well as low temperature specific heat study (0.4-2 K) on the ternary superconductor $Bi_2Rh_3Se_2$ to study the possible coexistence of charge-density-wave (CDW) and superconductivity. Interestingly, resistivity study under hydrostatic pressures, the anomaly near 250 K is shifted to high temperature. These experimental findings are not consistent with the traditional CDW phase. To make sure whether the anomaly is really a CDW transition or just a structural distortion, the temperature dependent electron diffraction measurements are in progress and the results will be discussed.