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Temperature-Pressure Phase Diagram of Lightly Hole-doped $BaFe_2As_2$[1] BALAZS SIPOS, ATHENA SAFA-SEFAT, BRIAN C. SALES, Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee 37831 USA, CORRELATED ELECTRON MATERIALS GROUP, MATERIALS SCIENCE AND TECHNOLOGY DIVISION, ORNL TEAM — Chemical doping and application of pressure are the two common tools to tune the electronic structure of a material. Although electron-doping on Fe-site in $BaFe_2As_2$ gives superconductivity up to $\sim$ 22 K, it is puzzling that hole-doping does not. For this reason, we decided to carry out pressure studies on a few lightly Cr- or Mo-doped crystals of $BaFe_2As_2$. We have applied pressures of up to 2 GPa using a cylinder cell, and Fluorinert as pressure medium. Our preliminary findings reveal the shift of antiferromagnetic ordering temperatures to lower with pressure, and a down-turn in resistivity at low temperatures and pressures, which may be attributed to superconductivity.

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