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Pressure-induced metallization and phase transitions in GeS_2[1]
RANGA DIAS, Department of Physics, Washington State University and Institute for Shock Physics, CHOONG-SHIK YOO, Department of Chemistry, Washington State University and Institute for Shock Physics — We have studied the pressure-induced structural and electronic phase transitions of crystalline GeS_2 ($P2_1/c$) to 50 GPa, using micro-Raman spectroscopy and electrical resistivity measurements in diamond anvil cells. The result shows a steady decrease in resistivity to that a metal at around 40GPa. The visual appearance of GeS_2 supports the insulator-metal transition: initially transparent GeS_2 becomes opaque and eventually reflective with increasing pressure. The Raman and X-ray diffraction result indicates that the metallization is preceded by a structural phase transition.

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