

Abstract Submitted
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New Hybrid Experimental Facility for High-Pressure / Low-Temperature XRD at SPring-8 YASUO OHISHI, NAOHISA HIRAO, Japan Synchrotron Radiation Research Institute (SPring-8), TAKAHIRO MATSUOKA, KATSUYA SHIMIZU, Center of Quantum Science and Technology under Extreme Condition, Osaka University — Novel pressure-induced phenomena of materials, such as changes in elastic, electronic, magnetic and other properties, including superconductivity, appear dominantly under low-temperature conditions rather than at room temperature or above. In order to enable accurate and reliable discussions of physics and chemistry in dense materials, it is extremely important to observe experimentally multiple physical properties, such as structural parameters and phonon modes, at exactly the same P/T conditions. Recently, we have developed a new simultaneous measurement system combined with HP/LT x-ray diffraction and on-axial optics micro-Raman spectroscopy, by using an x-ray transmission mirror, at the beamline BL10XU of SPring-8. This system potentially offers new possibilities for resolving novel phase transitions by precise and efficient determination of structural phase-equilibrium.

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