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Pressure-induced spin crossover in a Prussian Blue analogue

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The structural and chemical versatility of functional molecular materials, such as molecular magnets and metal-organic frameworks (MOFs), underlie important technological, industrial, and environmental applications. The extensive structural complexities now well-documented for these systems are likely to be associated with unprecedented pressure-induced behavior compared with the traditional solid state materials more commonly explored under high pressure conditions.1 Furthermore, the typically open (low density, often porous) nature of these materials is likely to induce such phenomena at more moderate pressures, such as may be routinely encountered in practical applications.2,3 Here we report pressure-induced spin-state switching in the Prussian Blue analogue, FePt(CN)6, including in situ Synchrotron (17-BM, Advanced Photon Source) and Neutron (SNAP, Spallation Neutron Source) powder diffraction studies. Work done at Argonne and use of the Advanced Photon Source (APS) was supported by the U.S. Department of Energy under Contract No. DE-AC02-06CH11357. Research at Oak Ridge National Laboratory's Spallation Neutron Source (SNS) was sponsored by the Scientific User Facilities Division, Office of Basic Energy Sciences, U. S. Department of Energy.

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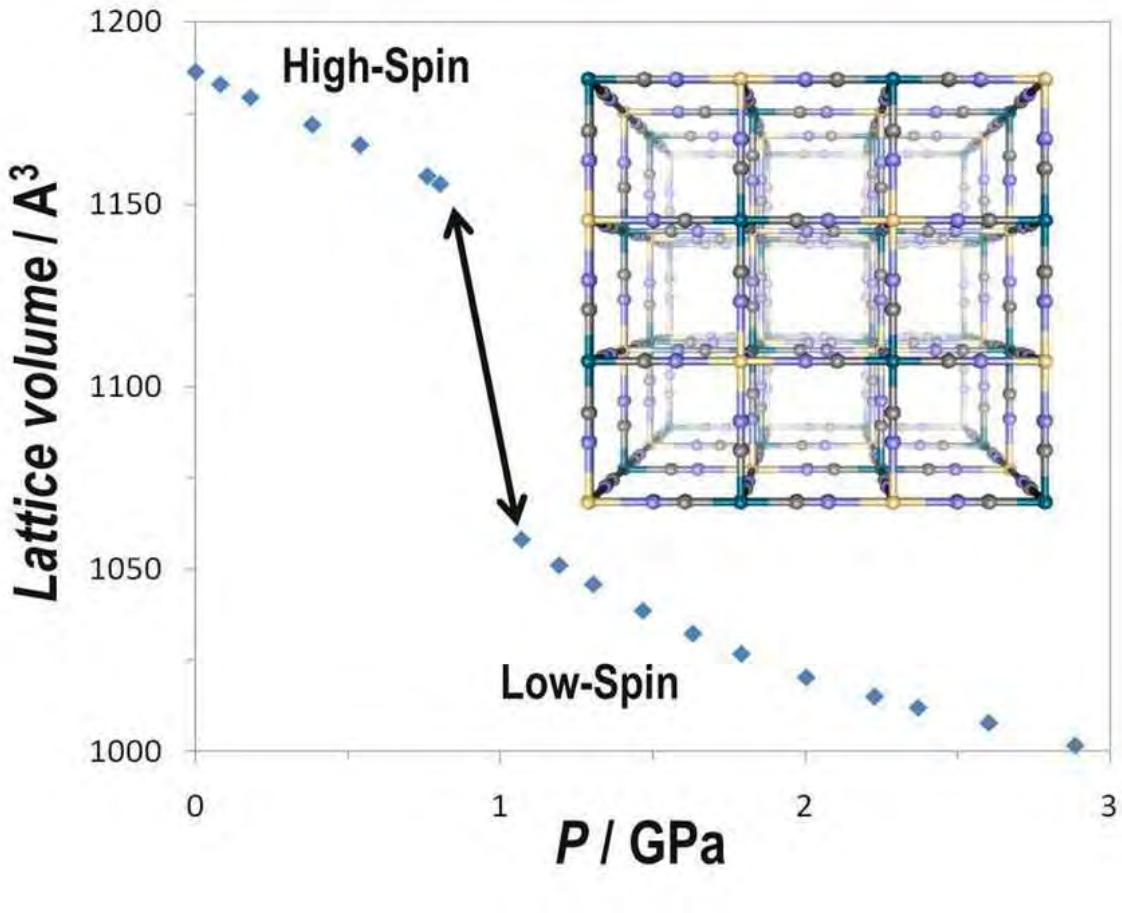

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