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HIGHLIGHTS AND BREAKTHROUGHS
A spin on lower mantle mineralogy

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Abstract: Constraining the spin state of Fe in Earth's lower mantle is critical to understanding the chemistry and dynamics of Earth's interior. In the October 2015 issue of *American Mineralogist*, Dorfman et al. present an experimental study of the effect of iron concentration on the spin transition in bridgmanite. Their experiments involved two different bridgmanite compositions (38 and 74% FeSiO₃). Based on the total spin moment determined by synchrotron-based X-ray emission spectroscopy, they show that Fe²⁺ in bridgmanite is in the high-spin state in the lower mantle but transition pressure decreases within highly enriched iron concentrations. **Keywords:** Iron, spin transition, bridgmanite, high pressure