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**Chemical engineering of the critical magnetic field for switching ferroelectricity in multiferroic hexaferrites** SAE HWAN CHUN, YISHENG CHAI, SO YOUNG HAAM, DEEPSHIKHA JAISWAL-NAGAR, DONG HAK NAM, YOON SEOK OH, INGYU KIM, BEOM SUNG LEE, KEE HOON KIM, FPRD, Department of Physics and Astronomy, Seoul National University, Seoul 151-747, Korea, KYUNG TAE KO, JAE HOON PARK, Department of Physics, POSTECH, Pohang 790-784, Korea, JAE-HO CHUNG, Department of Physics, Korea University, Seoul 136-713, Korea — Multiferroics wherein the magnetic and ferroelectric order parameters coexist with their large cross-coupling effects have promising application potentials for multifunctional devices. To realize various technical exploitations, not only the capability of switching ferroelectricity with low magnetic field but also the tunability of the critical magnetic field ( $B_c$ ) for the switching is essential. Herein, we report our discovery of a novel chemical route to engineer  $B_c$  in a low field regime in the multiferroic hexaferrite system and discuss its mechanism.

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