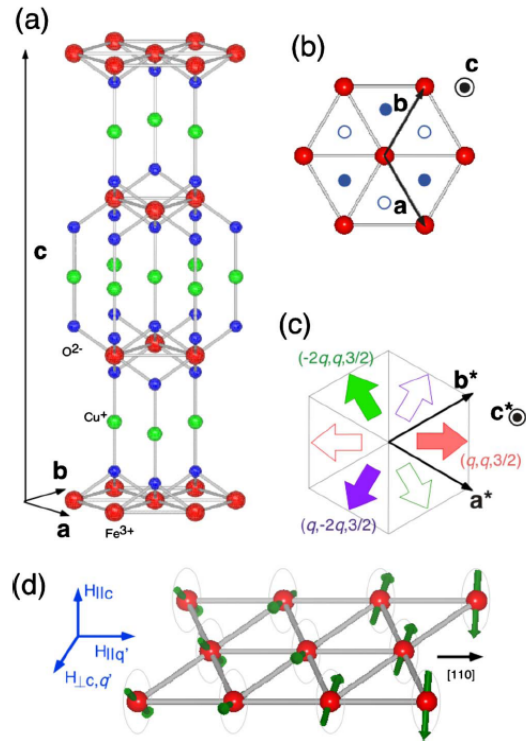
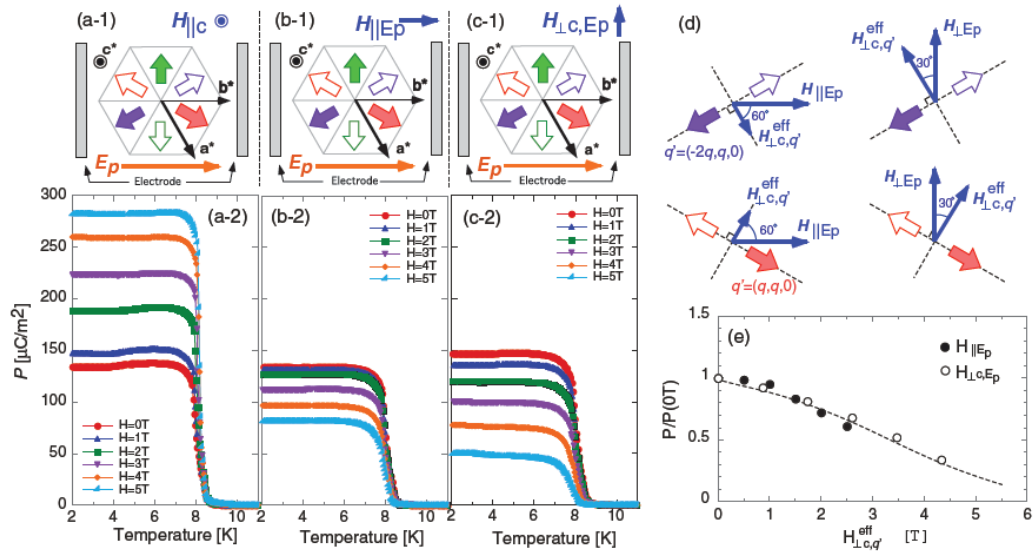


## Ferroelectricity in multiferroic CuFeO<sub>2</sub>:



Crystal structure of CuFeO<sub>2</sub>. (b) The definitions of the hexagonal basis and the arrangements of the O<sup>2-</sup> ions above (open blue circles) and below (filled blue circles) a Fe<sup>3+</sup> triangular lattice layer. (c) Schematic drawing of the  $q'$  vectors of the three  $q$  domains and the reciprocal-lattice basis. (d) Illustration of the magnetic structure in the FE-ICM phase and the directions of  $H_{||c}$ ,  $H_{||q'}$ , and  $H_{\perp c,q'}$ .



[(a-1), (b-1), and (c-1)] The relationships between the applied magnetic fields and  $q'$  vectors for (a-1)  $H_{||c}$ , (b-1)  $H_{||E_p}$ , and (c-1)  $H_{\perp c,E_p}$ . The magnetic field dependence of the temperature variations in  $P$  under (a-2)  $H_{||c}$ , (b-2)  $H_{||E_p}$ , and (c-2)  $H_{\perp c,E_p}$ . (d) The definition of the  $H_{\perp c,q'}^{eff}$  for the in-plane magnetic fields of  $H_{||E_p}$  and  $H_{\perp c,E_p}$ . (e) The  $H_{\perp c,q'}^{eff}$  dependences of  $P$  at 2.0 K normalized to the value of  $P$  in zero field. The dashed line is the guide to eyes.

**Source:** Nakajima, T.; Mitsuda, S.; Kanetsuki, S.; Yamano, M.; Iwamoto, S.; Yoshida, Y.; Mitamura, H.; Sawai, Y.; Tokunaga, M.; Kindo, K.; Prokeš, K.; Podlesnyak, A.; *Anisotropic magnetic field responses of ferroelectric polarization in the trigonal multiferroic CuFe<sub>1-x</sub>Al<sub>x</sub>O<sub>2</sub> ( $x=0.015$ )*, Phys. Rev. B **81**, (2010) 014422