

## **Quest for new magnetoelectric multiferroics operating at high temperature**

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Magnetically-induced ferroelectrics in which ferroelectricity originates from complex magnetic orders are recently known to show giant magnetoelectric effects, i.e., magnetic-field-induced changes in ferroelectric polarization. However, their magnetoelectric effects usually occur at temperatures that are too low to be practically useful. The quest for robust room-temperature magnetically-induced ferroelectrics is a major challenge in magnetoelectric research. In the present work, we found that a “Z-type hexaferrite” exhibits a low-field magnetoelectric effect at “room temperature”. Our observations clearly demonstrate the magnetic-field control of ferroelectricity at “room temperature”, and represent an important step toward practical applications using the magnetoelectric effect.

This work has been done in collaboration with Y. Kitagawa, Y. Hiraoka, T. Honda, T. Ishikura, M. Soda, and H. Nakamura.