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Reinvestigation of the linear magnetoelectric effect in Cr₂O₃ single crystals AYATO IYAMA, TSUYOSHI KIMURA, Division of Materials Physics, Graduate School of Engineering Science, Osaka University — Cr₂O₃ is not only the first experimentally confirmed magnetoelectric compound but also a rare example compound in which the magnetoelectric effect occurs at room temperature. It is worthwhile to revisit this compound from the standpoint of recently developed “multiferroic” where electric and magnetic orders coexist. Thus, we grew single crystals of Cr₂O₃ and measured their magnetodielectric and magnetoelectric effects. We found that the temperature dependence of the dielectric constant measured in a magnetic field shows a sharp peak around Neel temperature 307 K. Furthermore, we observed that the electric polarization induced by a magnetic field is reversed by sweeping an electric field at room temperature. In this talk, we present our experimental results on electric and magnetic properties in Cr₂O₃, and discuss the origins from current point of view.

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