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Crystal structure and physical properties of Cr oxide with K_2NiF_4-type structure TING-HUI KAO[1], National Sun-Yet Sen University, Kaohsiung 804, Taiwan, HIROYA SAKURAI, TARAS KOLODIAZHNYI, National Institute for Materials Science, 1-1 Namiki, Tsukuba 305-0044, Japan, YUTARO SUZUKI, MOMOKO OKABE, TORU ASAKA, KOICHIRO FUKUDA, Nagoya Institute of Technology, Nagoya 466-855, Japan, SUSUMU OKUBO, SHOHEI IKEDA, SHIGEO HARA, TAKAHIRO SAKURAI, HITOSHI OHTA, Kobe University, 1-1 Rokkodai-cho, Nada, Kobe 657-8501, Japan, HUNG-DUEN YANG, National Sun-Yet Sen University, Kaohsiung 804, Taiwan, NATIONAL SUN-YET SEN UNIVERSITY TEAM, NATIONAL INSTITUTE FOR MATERIALS SCIENCE TEAM, NAGOYA INSTITUTE OF TECHNOLOGY COLLABORATION, KOBE UNIVERSITY COLLABORATION — Ruddlesden-Popper (RP) type structure materials have been attracted much attention due to their interesting physical properties including high-T_c superconductivity, charge stripe, itinerant ferromagnetism and so on. In this work we are presenting physical properties of some of the K_2NiF_4 type structure compounds. $YSrCrO_4$ is first synthesized and found to be a hetto-type K_2NiF_4 structure. The space group of $YSrCrO_4$ is determined to be orthorhombic Pccn by the electron diffraction and the powder X-ray diffraction. $YSrCrO_4$ shows two-dimensional (2D) spin correlations and a canted antiferromagnetic (AF) ordering. Evidence of AF ordering of the Cr oxides is obtained microscopically from ESR. The dielectric measurements suggest existence of in-gap states, while no magneto-dielectric coupling was observed in the above compounds.

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