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Da-P120 **The electronic structure of giant magnetoresistive spinels:$Fe_{1-x}Cu_xCr_2S_4$ ($0 \leq x \leq 1$)** 한 상욱, 위 세창[1], 이 상선[1], 김 그라시아[1], 강 정수[1], 김 삼진[2], 김 철성[2], 송 하진[3], 신 현준[3], 박 병규[3], 김 재영[3], 박 재훈[3], 김 건호[4], 정 재인[5](*서울대학교 복합다체계물성연구소 [1]가톨릭대학교 물리학과. [2]국민대학교 물리학과. [3]포항가속기연구소, 포항공과대학교 [4]경상대학교 기초과학연구소, 물리학과. [5]포항산업과학연구원, 센스시스템.*)

Very large negative magnetoresistance (MR) and the metal-insulator(M-I) transition have been observed in $Fe_{1-x}Cu_xCr_2S_4$ (x=0, 0.5) spinel compounds. It has been considered that the mechanism for the giant MR and the M-I transition might be different from those in the perovskite manganites for which the existence of mixed-valent manganese ions is crucial. However, the Fe and Cu valences in $Fe_{1-x}Cu_xCr_2S_4$ have been controversial. In this study, we have investigated the electronic structures of $Fe_{1-x}Cu_xCr_2S_4$ (x=0.1, 0.2, 0.3, 0.5) by employing photoemission spectroscopy (PES), soft x-ray absorption spectroscopy (XAS), and magnetic cirular dichroism (MCD). It is found that Cr and Fe ions are mainly in the trivalent (3+) and divalent (2+) states, respectively, and that the magnetic moments of Fe ions are aligned antiparallel to those of Cr ions.