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Pressure-induced magnetic phase transitions in the two-dimensional ferromagnet Cs₂CuF₄ ISAO YAMADA, Department of Physics, Chiba University, Japan, MAMORU ISHIZUKA, Osaka University, Japan, HIRO-TAKA MANAKA, Kagoshima University, Japan — Since both the interlayer and intralayer ferromagnetic exchange interactions in Cs₂CuF₄ are closely correlated with the orbital state of Cu²⁺, we expect pressure-induced magnetic phase transitions in this compound because pressure can change the orbital state of Cu²⁺. To confirm this expectation, we performed magnetic susceptibility measurements at several pressures up to around 25 GPa over the temperature range from 1.5 to 18 K, using a diamond anvil cell and a SQUID vibrating coil magnetometer. The results show successive magnetic transitions around 2 GPa and 23 GPa, which correspond to changes of the interlayer and the intralayer exchange interactions from ferromagnetic to antiferromagnetic, respectively.

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