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Neutron Diffraction Study on Stoner Gap in the Superconducting Ferromagnet UGe₂ NAOFUMI ASO, YOSHIYA UWATOKO, KAZUMA HIROTA, ISSP, Univ. of Tokyo, GAKU MOTOYAMA, Univ. of Hyogo, SEIKO BAN, NORIAKI K. SATO, Dept. Phys., Nagoya Univ., YOSHIYA HOMMA, YOSHINOBU SHIOKAWA, IMR, Tohoku Univ. — We report the neutron diffraction study on the temperature dependence of Bragg peak intensities (I_B) in the superconducting ferromagnet UGe₂. When the temperature is lowered, $I_B(T)$ steeply increases below a characteristic temperature (T_X) in the ferromagnetic phase. We have found that it can be explained in terms of a simple Stoner model, and that the so-called Stoner gap Δ decreases with increasing pressure and collapses to zero around a critical pressure ($P_X \sim 1.2$ GPa) where the superconducting transition temperature displays a maximum. We speculate that a transition from the paramagnetic to perfect polarized state takes place at T_X and P_X in heavy electron bands.

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