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Weak ferromagnetic order and possible high-T_c superconductivity in the new $RuCa_2PrCu_2O_{8+\delta}$ ruthenium-cuprate H.C. KU, Department of Physics, National Tsing Hua University, Hsinchu, Taiwan, DEPARTMENT OF PHYSICS, NATIONAL TSING HUA UNIVERSITY, HSINCHU, TAIWAN TEAM — Weak ferromagnetic order with ordering temperature $T_m \sim 47$ K and possible superconducting transition with $T_c \sim 37$ K are observed for the new ruthenium-cuprate $RuCa_2PrCu_2O_{8+\delta}$ with the orthorhombic distortion of the tetragonal $RuSr_2GdCu_2O_{8+\delta}$-type (with $T_m \sim 136$ K and $T_c(\mathrm{max}) \sim 65$ K) phase. Anomalous temperature dependent magnetization $M_m(T)$ in both field-cooled (FC) and zero-field-cooled (ZFC) modes and isothermal magnetic hysteresis $M_m(B_a)$ below and above T_m and T_c indicates a very complicated coexistence and interplay between weak-ferromagnetic order and possible superconductivity.

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