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Coexistence between magnetism and superconductivity in the $HgMn_{0.3}Pb_2$ compound AUSDINIR DANILO BORTOLOZO, Escola de Engenharia de Lorena - EEL - USP-Brazil, ERIKA CARLINA A. SANTANA, Faculdade de Engeharia de Guaratinguetá - FEG - Brazil, CARLOS ALBERTO M. DOS SANTOS, ANTONIO JEFFERSON S. MACHADO, Escola de Engenharia de Lorena - EEL - USP-Brazil — In this work will be show the influence Mn doping in the $HgPb_2$ phase. The $HgMn_{0.3}Pb_2$ phase is investigated by x-ray diffraction, magnetic and electrical resistivity measurements. Polycrystalline samples with $HgMn_{0.3}Pb_2$ nominal compositions were prepared by solid state reaction. X-ray powder diffractograms suggest that all peaks can be indexed with the tetragonal phase of AuCu prototype. The R(T) data for the $HgMn_{0.3}Pb_2$ composition reveals superconductor behavior below 5.9K. The careful analysis of M(T) data reveals magnetic ordering close to 45K with saturation around the superconducting transition. The Mn doping in the $HgPb_2$ phase suggests the magnetic ordering it is occurring in the specific plane occupied by Mn atoms. The M(H) data show typical type-II superconductor which we estimate the H_{C1} approximately 240 Oe. This work, report by first time the coexistence between magnetism and superconductivity in an AuCu prototype compound

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