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Superconductivity in ZrCuxTe2 NAIARA BAPTISTA, Escola de Engenharia de Lorena, Universidade de Sao Paulo, TED GRANT, University of California at Irvine, SERGIO RENOSTO, Escola de Engenharia de Lorena, Universidade de Sao Paulo, ZACK FISCK, University of California at Irvine, ANTONIO JEFFERSON MACHADO, Escola de Engenharia de Lorena, Universidade de Sao Paulo, UNIVERSITY OF CALIFORNIA AT IRVINE COLLABORATION — Layered transition metal dichalcogenides of the type MX_2 (M is transition metal, X = S, Se, Te) have been studied for their electronic properties due to low dimensionality. In these materials each layer correspond to the hexagonal transition metal intercalated by two similar chalcogen sheets. In $ZrTe_2$ the prototype structure is CdI_2. The interaction of layers is weak as van der Walls bonding between chalcogen element (X). In general charge density wave and superconductivity coexist in these of materials. Indeed, various compounds of this material class exhibits this coexistence such as 2H-TaS_2, 2H-NbS_2 etc. Some results reported in literature about the electrical properties of $ZrTe_2$ show that this material presents metallic behavior at a temperature interval from 4.0 K to 300 K. Thus, in this work we present results about intercalation of Cu in the ZrTe2 compound. The results suggest that the intercalation of Cu is able to induce superconductivity in this compound. The superconducting critical temperature close to 10.2 K is revealed through of magnetization and resistivity measurements. The x-ray result reveals a new compound, originating from Cu intercalation and crystallizes in the $LiCrS_2$ prototype structure.

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