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Bulk superconductivity in intercalated $M_x\text{ZrTe}_3$ (M=Cu, Ni) XI-ANGDE ZHU, HECHANG LEI, CEDOMIR PETROVIC, Brookhaven National Laboratory — We report the bulk superconductivity of 3d transition metal (e.g. Cu, Ni) intercalated ZrTe_3 single crystals, $M_x\text{ZrTe}_3$ (M=Cu, Ni). ZrTe_3 shows charge density wave (CDW) transition at $T_{CDW}=63\text{K}$ and the CDW nesting vector $q_{CDW}=(1/14,0,1/3)$ (reciprocal space). It is metallic below 300K with an anomaly due to CDW transition and becomes filamentary superconductor below 2 K. The derived superconducting parameters indicate that $M_x\text{ZrTe}_3$ are bulk type-II superconductors and can be depicted in the framework of Bardeen-Cooper-Schrieffer (BCS) scenario. Intercalation depresses the CDW transition and enhances the superconductivity.

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