Bulk superconductivity in intercalated $M_xZrTe_3$ (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, $M_xZrTe_3$ (M=Cu, Ni). ZrTe$_3$ shows
charge density wave (CDW) transition at $T_{CDW}=63$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 $M_xZrTe_3$ are bulk type-II su-
perconductors and can be depicted in the framework of Bardeen-Cooper-Schrieffer
(BCS) scenario. Intercalation depresses the CDW transition and enhances the su-
perconductivity.