Abstract Submitted
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Transport properties of transition-metal substituted FeTe0.65Se0.35 single crystals[1] VALERIY L. BEZUSYY, DARIUSZ J. GAWRYLUK, ARTUR MALINOWSKI, MAREK BERKOWSKI, MARTA Z. CIEPLAK, Inst. of Physics, PAS, Warsaw, Poland — We use the ab-plane resistivity and Hall effect measurements to evaluate the influence of substitutions on the superconductivity and normal-state transport in $Fe_{1-y}M_yTe_{0.65}Se_{0.35}$ single crystals, where M=Co, Ni or Cu. The crystals, with $0 < y < 0.11$, are grown by Bridgman's method. We find that the Co impurity induces markedly different effects than the other two impurities. Superconducting transition temperature (T_c) is suppressed with the rate of about 1.3 K per at.% of Co impurity, while the rate is about 3.5 and 4 times larger in case of Ni and Cu, respectively. The resistivity at the T_c onset remains almost unaffected by Co doping, while it increases substantially for Ni and Cu. The Hall constant (R_H) is positive for all samples, indicating that hole carriers dominate the transport. However, while the R_H is gradually suppressed towards zero with increasing Co content suggesting that electron doping occurs, it remains almost unchanged by Ni or Cu doping, suggesting that these impurities are rather of isovalent nature. The implications of these results will be discussed.

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