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Magnetothermoelectric effects in $\mathbf{Fe_{1+d}Te_{1-x}Se_x}$[1] MARCIN MATUSIAK, Institute of Low Temperature and Structural Research, PAS, KAZIMIERZ CONDER, Laboratory for Developments and Methods, Paul Scherrer Institute —
We report data on resistivity as well as Hall, Seebeck and Nernst coefficients for the $Fe_{1+d}Te_{1-x}Se_x$ single crystals with $x = 0$, 0.39, and 0.40. The parent compound $Fe_{1.04}Te$ exhibits a Fermi surface reconstruction at $T = 61$ K, which is ascribed to the onset of the antiferromagnetic order. Two very closely doped samples: $Fe_{1.01}Se_{0.39}Te_{0.61}$ (Se39) and $Fe_{1.01}Se_{0.4}Te_{0.6}$ (Se40) are superconductors with $T_c =$ 13.4 K and 13.9 K, respectively. Properties of these two single crystals are almost identical at high temperatures, but start to diverge below $T \approx 80$ K. Despite there is no magnetic transition in neither Se39 nor Se40, the observed differences seem to be a consequence of varying with selenium content spin correlations.

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