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Signatures of non-Fermi liquid behavior in the thermopower of MnSi

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Signatures of non-Fermi liquid (NFL) behavior are commonly found through the resistivity measurements, which give the power-law exponent n. Another transport coefficient which may bring additional information is Seebeck coefficient, $S(T)$. Focusing on a well-established, genuine NFL system MnSi, we have determined $S(T)$ for pressures up to 2.8 GPa. At ambient pressure, S saturates above 400 K, showing no linear dependence in any temperature range. It drops precipitously at the ferromagnetic transition temperature T_c. Above the critical pressure $p_c \sim 1.4$ GPa, $T_c = 0$ and the system shows NFL behavior with the resistivity exponent $n \approx 1.5$. Simultaneously in $S(T)$ we observe a clear enhancement below 10 K with respect to the values below p_c. As pressure is increased to $2p_c$, the NFL contribution to $S(T)$ is gradually suppressed. We interpret our results in a scenario where the anomalous transport properties are caused by the scattering of the conduction electrons on helicoidal magnetic fluctuations.