Erratum: Realization of Spin Gapless Semiconductors: The Heusler Compound Mn_2CoAl [Phys. Rev. Lett. 110, 100401 (2013)]

Siham Ouardi, Gerhard H. Fecher, Claudia Felser, and Jürgen Kübler

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The sentence, "The resistivity in those metallic systems (<0.5 $\mu\Omega$ m for PtMnSn) is, however, 3 orders of magnitude lower than that of Mn_2CoAl (400 $\mu\Omega$ m)" on page 3 of the Letter contains a factual error with respect to the unit of the resistivity and should read as follows:

"The resistivity in such more metallic-type Heusler systems (≈4 $\mu\Omega$ cm for Co_2FeSi at low temperature [1]) is, however, 2 orders of magnitude lower than that of Mn_2CoAl (≈400 $\mu\Omega$ cm)."

Compare also Fig. 3 of the Letter where the conductivity is in the range of about 2.24 to 2.44 × 10^3 S/cm in the range of 2 to 300 K, and the high-temperature conductivity is given in the text by 2440 S/cm corresponding to a resistivity of 409.8 $\mu\Omega$ cm. The sentence on page 3 following shortly after the above one, "Different samples with different resistivities (0.8–6 $\mu\Omega$ m) always show a nearly zero Seebeck coefficient," contains already the correct values and unit.

The reported charge carrier concentration (10^{17} cm^{-3}) also contains a mistake, as a follow-up error caused by some conversion between cgs and SI units. The correct value varies from 1.7 × 10^{20} to 3 × 10^{20} cm^{-3} for temperatures between 2 and 300 K (see Fig. 1).

The initial comparison to a disordered half Heusler compound (PtMnSn) might be misleading. It is replaced by a comparison to the half-metallic ferromagnetic Heusler compound Co_2FeSi that was already mentioned in the original Letter. In such compounds, one spin channel is semiconducting whereas the other is metallic, and a more metallic-type conductivity is expected for nonpolarized currents. Further, it should be mentioned that the resistivity of the narrow band gap, semiconducting Heusler compound Fe_2VAl (≈800 $\mu\Omega$ cm) [2] is reported to have the same order of magnitude as the

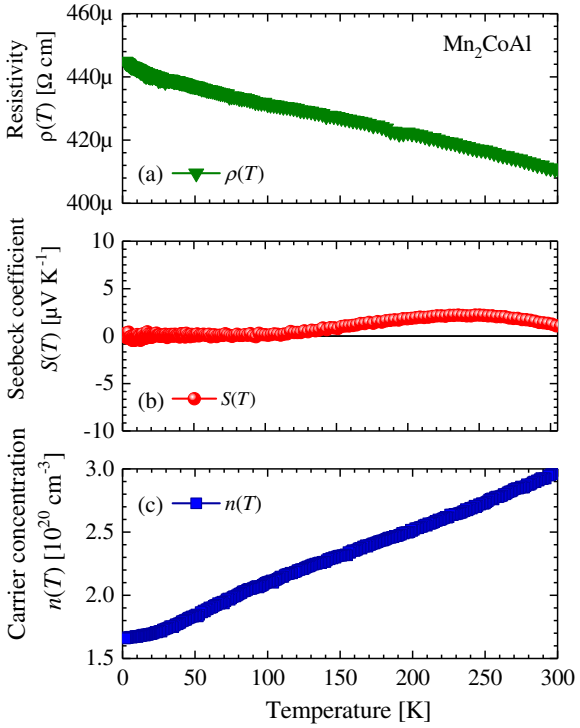

FIG. 1. Transport properties of Mn_2CoAl.

one of Mn_2CoAl. The corrected value of the charge carrier concentration is comparable to that of Fe_2VAl ($\approx 10^{21}$ cm^{-3}) [2]. This is in agreement with the interpretation of a spin gapless semiconductor.

The corrections do not affect the conclusions of the Letter that were not only based on the value of the resistivity but on the overall physical behavior of Mn_2CoAl including the correct values of the conductivity and calculated electronic structure.

Note that Refs. [1,2] correspond in the original Letter to Refs. [19,17], respectively.

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[1] D. Bombor, C. G. F. Blum, O. Volkonskiy, S. Rodan, S. Wurmehl, C. Hess, and B. Büchner, Phys. Rev. Lett. **110**, 066601 (2013).
[2] V. I. Okulov, V. E. Arkhipov, T. E. Govorkova, A. V. Korolev, and K. A. Okulova, Low Temp. Phys. **33**, 692 (2007).