

## Erratum: Theory of magnon-driven spin Seebeck effect [Phys. Rev. B **81**, 214418 (2010)]

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We erroneously neglected to derive the correlator  $\langle \dot{m}^i(r', t') m^j(r, t) \rangle$ . In the macrospin model

$$\langle \dot{m}^i(0,0) m^j(0,0) \rangle = \frac{\gamma k_B T}{M_s V} \begin{pmatrix} -\alpha & -1 \\ 1 & -\alpha \end{pmatrix}_{ij}, \quad (1)$$

and the thermalized magnon gas

$$\langle \dot{m}^i(0,0) m^j(0,0) \rangle = \frac{\gamma k_B T}{M_s} \left[ \frac{3}{2} \zeta_{5/2} \left( \frac{k_B T}{4\pi D} \right)^{3/2} \right] \begin{pmatrix} -\alpha & -1 \\ 1 & -\alpha \end{pmatrix}_{ij}. \quad (2)$$

In the final result for the magnon-induced spin Hall signal Eq. (25) the volume  $V_a$  should be replaced by

$$V'_a = \frac{2}{3 \zeta_{5/2}} \left( \frac{4\pi D}{k_B T} \right)^{3/2}. \quad (3)$$

This mistake in combination with a reappraisal of the spin wave stiffness  $D$  of YIG (See Ref. 16 of our paper) and a spread of mixing conductances between YIG and Pt  $g_r/A \approx 10^{15-16}/\text{m}^2$  lead to the following modifications in Table I.

The numbers in the text should be changed accordingly. The disagreement between theory and experiment for  $\xi$  for Py might reflect a short circuit of the ISHE signal through the extended Py layer. This is not an issue for insulating YIG.

TABLE I. Parameters and spin Seebeck results for YIG and Py. The numbering of the references below corresponds to our original paper, with the addition of Ref. 23 [K. Uchida *et al.*, Nature Mat. (to be published)].

	YIG	Py	Unit
$D$	$1.55 \times 10^{-38\text{a}}$	$7.6 \times 10^{-39\text{d}}$	$\text{J} \cdot \text{m}^2$
$\tau_m \tau_{mp}$	$10^{-15 \sim -13\text{b}}$	$10^{-16\text{e}}$	$\text{s}^2$
$g_r/A$	$10^{15 \sim 16\text{c}}$	$10^{18\text{f}}$	$1/\text{m}^2$
$V'_a{}^{1/3}$	5.4	3.8	nm
$\eta$ (th)	0.4–0.5	0.27	mm
$\lambda$ (th)	4.7–47	0.3	mm
$\lambda$ (exp)	6.7	4.0	mm
$\xi$ (th)	0.38–3.8	$1.3 \times 10^2$	$\mu\text{V}/\text{K}$
$\xi$ (exp)	0.16	0.25	$\mu\text{V}/\text{K}$

<sup>a</sup>Reference 16.

<sup>b</sup>Reference 13–15.

<sup>c</sup>Reference 16, 23.

<sup>d</sup>Reference 17.

<sup>e</sup>Reference 15, 19.

<sup>f</sup>Reference 20.

<sup>23</sup>K. Uchida *et al.*, Nature Materials (to be published).