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ADDITION/CORRECTION

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Enhanced Thermoelectric Metrics in Ultra-long Electrodeposited PEDOT Nanowires [*Nano Letters* **2011**, *11*, 125–131; DOI: 10.1021/nl103003d]. David K. Taggart, Yongan Yang, Sheng-Chin Kung, Theresa M. McIntire, and Reginald M. Penner*

The signs of the Seebeck coefficients reported in Table 1 of our paper are incorrect. These values were measured in accordance with the definition for the Seebeck coefficient given on p 130:

$$S = \frac{\Delta V_s}{\Delta T} = \frac{V_{hot} - V_{cold}}{T_{hot} - T_{cold}} \quad (1)$$

where ΔV_s is the Seebeck voltage and ΔT is the temperature gradient imposed upon the nanowires. Since S is defined by $\varepsilon_x = S(\partial T/\partial x)$,[1,2] eq 1 is incorrect and the Seebeck coefficient is defined instead as

$$S = \frac{-\Delta V_s}{\Delta T} = \frac{-(V_{hot} - V_{cold})}{T_{hot} - T_{cold}} \quad (2)$$

By this definition, the S values reported in Table 1 are positive, not negative, and the majority carriers in our PEDOT nanowires are holes, not electrons, as erroneously stated on p 130. To be clear, our experimental measurements of S for arrays of PEDOT nanowires yield a ΔV_s that is positive on the cold side of the nanowire array.

Because the effective mass of holes in PEDOT is ~3% lower than that of electrons (0.117 m_e versus 0.121 m_e[3]), reported values of the carrier concentration, n, and hole mobility are

Table 1. Experimentally Measured σ, S, and $S^2\sigma$ for PEDOT Nanowires and Films and Comparison with Literature Values for PEDOT and Other Conductive Polymers

sample	σ (S/cm) 310 K	σ (S/cm) 300 K	S (μV/K) 310 K	S (μV/K) 300 K	$S^2\sigma$ ($W \cdot m^{-1} \cdot K^{-2}$) 310 K	$S^2\sigma$ ($W \cdot m^{-1} \cdot K^{-2}$) 300 K	μ ($cm^2 \cdot V^{-1} \cdot s^{-1}$) 310 K	reference
PEDOT nanowires height × width								
48 nm × 582 nm	40.5	39.6	38	33	5.8×10^{-6}	4.3×10^{-6}	9.9	this work
80 nm × 440 nm	12.0	11.7	85	80	8.7×10^{-6}	8.4×10^{-6}	12.0	"
90 nm × 205 nm	7.9	7.6	122	69	1.2×10^{-5}	3.6×10^{-6}	13.2	"
60 nm × 340 nm	6.9	6.6	42	38	1.2×10^{-6}	9.6×10^{-7}	2.1	"
66 nm × 568 nm			70	76				"
40 nm × 245 nm			80	78				"
40 nm × 251 nm			35	40				"
40 nm × 258 nm			91	73				"
60 nm × 157 nm			104	75				"
75 nm × 172 nm			44	39				"
mean values	16.8	16.4	74	62	9.2×10^{-6}	6.3×10^{-6}	9 ± 5	"
PEDOT Films height × width								
30 nm × 1.5 mm	18.3	17.9	34	33	2.1×10^{-6}	2.0×10^{-6}	2.5	this work
150 nm × 180 μm	13.2	13.0	57	47	4.4×10^{-6}	2.9×10^{-6}	4.5	"
45 nm × 1.5 mm	9.7	9.3	55	57	2.9×10^{-6}	3.0×10^{-6}	4.0	"
170 nm × 312 μm	3.2	3.1	44	39	6.3×10^{-7}	4.7×10^{-7}	0.57	"
mean values	11.1	10.9	48	44	2.6×10^{-6}	2.1×10^{-6}	3 ± 2	"
Literature Values (all data 300 K)								
polyacetylene iodine doped thickness, t = 300 nm	3×10^4 to 5×10^4		15–20		1.2×10^{-3} to 1.5×10^{-3}			4
polyacetylene metal–Cl_5 doped	0.15–1.1 $\times 10^4$		11–1077		1.2×10^{-7} to 1.5×10^{-3}			5
polyacetylene $FeCl_3$ or I doped $t = 9 - 35$ μm	92–1 $\times 10^4$		9–22		6.2×10^{-7} to 8.3×10^{-5}			6
polyaniline in PETG or PMMA	0.13–30		3–9		6.4×10^{-11} to 2.2×10^{-7}			7
polypyrrole films $t = 40 - 100$ μm	26		7		1.7×10^{-7}			8

Table 1. Continued

sample	σ S/cm 310 K	σ S/cm 300 K	S μV/K 310 K	S μV/K 300 K	$S^2\sigma$ W·m^{-1}·K^{-2} 310 K	$S^2\sigma$ W·m^{-1}·K^{-2} 300 K	μ cm^2·V^{-1}·s^{-1} 310 K	reference
doped poly(alkylthiophene) t = 1.75 − 3 μm	0.00002−0.0013		200−700		1.0×10^{-10} to 8.8×10^{-9}			9
polythiophene films t = sub 20 μm	0.00005−3		20−10000		5.0×10^{-8} to 1.0×10^{-5}			10
polycarbazole and derivatives	0.00027−0.29		4.9−127		5.0×10^{-10} to 1.5×10^{-7}			11
PEDOT/PSS DMSO-treated	0.06−220		12−888		1.6×10^{-9} to 4.8×10^{-6}		0.49−2.11	12
PEDOT/PSS pellets DMSO-treated	9−54		12−15		2.0×10^{-7} to 8.3×10^{-7}			13
PEDOT/PSS films t = 10 − 30 /μm	0.80−80		9−12		1.2×10^{-8} to 8.0×10^{-7}			14
PEDOT/PSS:carbon nanotube composite films: t = 0.07 − 13 mm	0.20−0.40		10000−40000		1.0×10^{-6} to 2.5×10^{-5}			15

both modified by the inversion in sign of S. Specifically, the recalculated hole concentrations are 3.7×10^{18} to 45×10^{18} cm^{-3}. Values for hole mobilities are given in the corrected Table 1.

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