Principles of Nanomagnetism - Errata

(First Edition, 2009)

1) Page 23: Table 2.2 should read

Table 2.2: Micromagnetic parameters of some materials at room temperature, computed using $\alpha = 0.472$ (see Subsect. 2.4.1). They are: the exchange length l_{ex}, the domain wall width δ_0, the critical single-domain diameter $D_{\rm cr}$, and the domain wall energy density γ [13]

Material	$l_{\rm ex}$ (nm)	δ_0 (nm)	$D_{\rm cr}$ (nm)	γ (10^{-3}Jm^{-2})
$Nd_2Fe_{14}B$	2.8	3.82	210	24
$SmCo_5$	5.3	2.64	1170	57
Sm_2Co_{17}	4.6	5.74	420	31
$BaFe_{12}O_{19}$	8.3	1.94	62	6.3
$Ni_{0.8}Fe_{0.2}$ (Py)	5.08	6.25	4.66	0.215

2) Page 25: Eq. 2.6 should read (misplaced bracket):

$$B_J(x) = \left(1 + \frac{1}{2J}\right) \coth\left[\left(1 + \frac{1}{2J}\right) x\right] - \frac{1}{2J} \coth\left(\frac{x}{2J}\right) . \qquad (1)$$

3) Page 33: line 5 should read

...in the SI in J m^{-3}

4) Page 40: Eq. 2.74 should read

$...-\frac{\alpha}{M_s}\mathbf{M} \times ...$

5) Page 52: Eq. 2.113 should read

$...\frac{\gamma_G \Delta_H}{\alpha_G} H.$

6) Page 81: Eq. 3.40 should read

$... - \frac{1}{2}\mu_0 M_s^2 (N_\perp \sin^2\ \theta + N_\parallel \cos^2\ \theta)...$

7) Page 81: line 3 should read

The physical origin of this anisotropy can be a sum of crystalline and other effects, along the same axis.

8) Page 82: last paragraph should read

...is written $D_{\rm cr}^{\rm spm} = (25 k_B T/\alpha K_1)^{1/3}$;

9) Page 92, line 8, should read

(see the table with values of l_{ex} on page 38).

10) Page 96: Eq. (3.76) should read

$...\times(\mathbf{m} \times \hat{s})$,

11) Page 107, line 1, fourth paragraph, should read

...there exist two

12) Page 133: in Fig. 5.3 the dotted lines for $X < 0$ and $X > 0$ should meet at $X = 0$

13) Page 137: Eq. (5.20) and Eq. (5.21) should read

$$\frac{1}{R_P} = \left(\frac{1}{R_{\uparrow\uparrow} + R_{\uparrow} + R_{\uparrow\uparrow}} + \frac{1}{R_{\downarrow\uparrow} + R_{\downarrow} + R_{\downarrow\uparrow}} \right) , \qquad (5.20)$$

and

$$\frac{1}{R_{AP}} = \left(\frac{1}{R_{\uparrow\uparrow} + R_{\uparrow} + R_{\uparrow\downarrow}} + \frac{1}{R_{\downarrow\uparrow} + R_{\downarrow} + R_{\downarrow\downarrow}} \right) . \qquad (5.21)$$

14) Page 151: Eq. (6.2) should read

$M_z(r) = M_0(c\mathrm{e}^{-r^2/l_{\mathrm{ex}}^2} + (1-c)e^{-r^2/4l_{\mathrm{ex}}^2})$.

15) Page 153: last line of the fourth paragraph should read

...defined by the polarity of the vortex.

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