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Corrigendum: Error field correction in DIII-D Ohmic plasmas with either handedness

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The expression for the overlap, equation (1) in the published paper (Park *et al* 2011 *Nucl. Fusion* **51** 023003), was incorrect and should be replaced by

$$\mathcal{C} \equiv \sqrt{\frac{\oint \mathrm{d}\varphi' [\oint \mathrm{d}a(\delta \vec{B}^x \cdot \hat{n}_b)(-\vartheta, \varphi' - \varphi)(\delta \vec{B}^x_d \cdot \hat{n}_b)(\vartheta, \varphi)]^2}{\oint \mathrm{d}a(\delta \vec{B}^x \cdot \hat{n}_b)^2 \oint \mathrm{d}a(\delta \vec{B}^x_d \cdot \hat{n}_b)^2}}. \quad (1)$$

We found that it would be worthwhile to add more descriptions. This is the root-mean-square integration over φ', after the convolution integral to ($\vartheta = 0, \varphi = \varphi'$) between the two distribution functions of magnetic field. The extra degree of freedom, only in the toroidal angle, is because the reference toroidal angle of the dominant field distribution $\delta \vec{B}_d(\vartheta, \varphi)$ can be arbitrary due to the toroidal symmetry in a tokamak. This expression becomes simply the dot product of the two normalized matrix vectors in the complex Fourier space, if one decomposes a magnetic field as

$$\sqrt{\mathcal{J}|\vec{\nabla}\psi|}(\delta \vec{B}^x \cdot \hat{n}_b)(\vartheta, \varphi) = \sum_{mn} \Phi_{mn} \mathrm{e}^{\mathrm{i}(m\vartheta - n\varphi)}. \quad (2)$$

Note the additional factor associated with the Jacobian of the surface area, $\mathcal{J}|\vec{\nabla}\psi|$, to have the surface area integral $\mathrm{d}a = \mathcal{J}|\vec{\nabla}\psi|\mathrm{d}\vartheta\,\mathrm{d}\varphi$ independent of coordinates. It is then straightforward to show equation (1) becomes the dot product between a given magnetic field $\vec{\Phi} = \{(m, n)|\Phi_{mn}\}$ and the dominant magnetic field $\vec{\Phi}_d = \{(m, n)|\Phi_{dmn}\}$ as

$$\mathcal{C} \equiv \frac{|\vec{\Phi} \cdot \vec{\Phi}_d|}{|\vec{\Phi}||\vec{\Phi}_d|}. \quad (3)$$

