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Errata for
Fundamentals of Fiber Orientation

http://github.com/charlestucker3/Fundamentals-of-Fiber-Orientation-errata

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If you find additional errors, please send them to `ctucker@illinois.edu` so that they can be included here.

Chapt. 4. Flow Orientation of Single Fibers

On page 92, the last paragraph, the second line, $\xi > 1$ should be $\xi > 0$. The corrected sentence should read:

> If the particle is fiber-shaped $(a > b)$ then $\xi > 0$ and this term pulls the fiber toward the direction of maximum stretching rate.

Thanks to Florian Mallmann for this correction.

Chapt. 5. Flow Orientation of Groups of Fibers

On page 163, Eqn. (5.99), the first plus sign on the right-hand side should be a minus sign. The corrected equation should read

$$\dot{\mathbf{A}}^{\mathrm{RSC}} = \dot{\mathbf{A}} - (1 - \kappa) \sum_{\lambda=1}^{3} \dot{\lambda}_i \mathbf{e}_i \mathbf{e}_i$$

Thanks to Julien Férec for this correction.

Chapt. 8. Mechanical Properties and Orientation

The example on page 246 of modeling stiffness vs. fiber orientation is described as being for a 40% by weight long glass fiber/PP composite, but the calculations for Fig. 8.5 actually used 30% by

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weight. 40% should be changed to 30% in the fiber caption and in the second line of the first paragraph on page 246. Thanks to Huidi Ji for this correction.

The example calculation in Section 8.4.5 for the stiffness of a layered structure states that the long glass fiber/PP composite has 40% by weight of fibers. However, the calculations in Fig. 8.6(c) and Table 8.4 actually used 30% by weight. The correct figure should look like this:
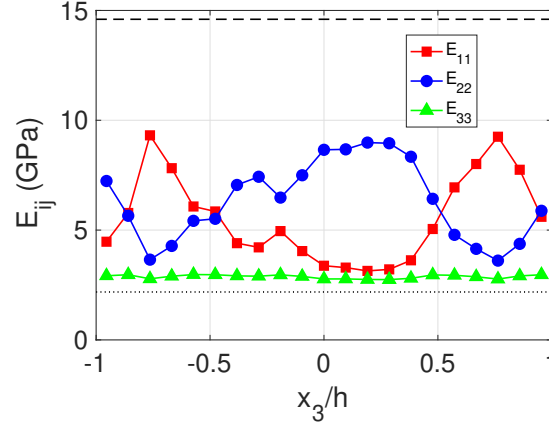

Fig. 8.6(c) Stiffness, 40 wt.% long glass fiber/PP

The correct table should read:

Table 8.4 Predicted tensile and flexural moduli for the two injection molded samples in Fig. 8.6.

	E_{11} (GPa)	E_{22} (GPa)
30 wt.% short glass fiber/PC		
Tensile	8.04	4.02
Flexural	8.51	3.75
40 wt.% long glass fiber/PP		
Tensile	5.59	6.38
Flexural	6.58	5.42

Chapt. 9. Current and Future Trends

On page 266, Eqn. (9.10) is incorrect for a 1–3 shear flow. The error does not affect Eqn. (9.11). Equation (9.10) should read

$$\mathbf{\Sigma}^p = \dot{\gamma} \begin{bmatrix} -\eta_n & 0 & \eta_p \\ 0 & -\hat{\lambda}_3 \eta_n & 0 \\ \eta_p & 0 & -\hat{\lambda}_2 \eta_n \end{bmatrix}$$

Thanks to Julien Férec for this correction.

References

On page 315, reference [KKCO20] has no page number. The page number should be 69, and the corrected reference should read:

[KKCO20] S. K. Kugler, A. Kech, C. Cruz, and T. Osswald. Fiber orientation predictions—A review of existing models. *J. Compos. Sci.*, 4(2):69, 2020.