Advanced Modeling and Simulation
in Engineering Sciences

CORRECTION

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Correction to: Comparison between thick level set (TLS) and cohesive zone models

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Correction

In the publication of this article [1], there was an error in some equations.

- Equation (37) should instead read:

$$\hat{\sigma} = F(\lambda I \hat{\sigma}) \ \text{ and } \ \int_{\tilde{\phi}=0}^{\hat{\ell}} h(\tilde{\phi}) \mathrm{d}\tilde{\phi} = -g'_{\mathrm{dam}}(0) \frac{1 - g_{\mathrm{dam}}(d(\hat{\ell}))}{g_{\mathrm{dam}}(d(\hat{\ell}))} \hat{\sigma}^2 \tag{1}$$

- Equation (38) should instead read:

$$\hat{\sigma} = F(\lambda I \hat{\sigma}) \ \text{ and } \ \int_{0}^{\hat{\phi}} h(\tilde{\phi}) \mathrm{d}\tilde{\phi} = -g'_{\mathrm{dam}}(0) \frac{1 - g_{\mathrm{dam}}(d(\hat{\phi}))}{g_{\mathrm{dam}}(d(\hat{\phi}))} \hat{\sigma}^2 \tag{2}$$

- Equation (45) should instead read:

$$\hat{\sigma} = F(\lambda I \hat{\sigma}) \ \text{ and } \ \int_{0}^{\hat{\phi}} h(\tilde{\phi}) \mathrm{d}\tilde{\phi} = \frac{d(\hat{\phi})}{1 - d(\hat{\phi})} \hat{\sigma}^2 \tag{3}$$

- Equation (49) should instead read:

$$\hat{\sigma} = F\left(\lambda \frac{\hat{\phi}^2}{1 - \hat{\phi}} \hat{\sigma}\right) \ \text{ and } \ \int_{0}^{\hat{\phi}} h(\tilde{\phi}) \mathrm{d}\tilde{\phi} = \frac{2\hat{\phi} - \hat{\phi}^2}{(\hat{\phi} - 1)^2} \hat{\sigma}^2 \tag{4}$$

- Equation (50) should instead read:

$$\hat{\sigma}(\hat{\phi}) = \frac{1 - \hat{\phi}}{1 - \hat{\phi} + \lambda \hat{\phi}^2} \ \text{ and } \ \int_{0}^{\hat{\phi}} h(\tilde{\phi}) \mathrm{d}\tilde{\phi} = \frac{2\hat{\phi} - \hat{\phi}^2}{(1 - \hat{\phi} + \lambda \hat{\phi}^2)^2} \tag{5}$$

- Equation (63) should instead read:

$$H(\hat{\phi}) = \int_{0}^{\hat{\phi}} h(\tilde{\phi}) \mathrm{d}\tilde{\phi} \tag{6}$$

- Equation (65) should instead read:

$$\lambda \le \frac{1}{2} \tag{7}$$

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- Equation (70) should instead read:

$$\mu_n = \min_{\Gamma} \sqrt{\frac{\overline{(h(d)Y_c)_n}}{\overline{Y}_n}} \tag{8}$$

- In Eq. (75), the expression of β_n should instead read:

$$\beta_n = Y_c \frac{\int_{\phi=0}^{\ell} h'(d)\left(\frac{d'(\phi/\ell_c)}{\ell_c}\right)^2 \left(1 - \frac{\phi}{\rho(s)}\right)\mathrm{d}\phi}{\int_{\phi=0}^{\ell} \frac{d'(\phi/\ell_c)}{\ell_c}\left(1 - \frac{\phi}{\rho(s)}\right)\mathrm{d}\phi} \tag{9}$$

- Equation (76) should instead read:

$$\Delta\mu_n^{\mathrm{pred}} < \frac{\Delta\phi_{\max}\beta_n - f_n}{\alpha_n} \tag{10}$$

- Equation (77) should instead read:

$$\Delta\mu_n^{\mathrm{pred}} = \min_{\Gamma} \frac{\Delta\phi_{\max}\beta_n - f_n}{\alpha_n} \tag{11}$$

- Equation (78) should instead read:

$$\mu^{\mathrm{corr}} = \sqrt{\frac{\overline{(h(d)Y_c)_n}}{\overline{Y}_n}}\bigg|_{\arg\min_{\Gamma} \frac{\Delta\phi_{\max}\beta_n - f_n}{\alpha_n}} \tag{12}$$

This has now been included in this erratum.

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Reference
1.   Gómez AP, Moës N, Stolz C. Comparison between thick level set (TLS) and cohesive zone models. Adv. Model. and Simul. in Eng. Sci. 2015;2:18. https://doi.org/10.1186/s40323-015-0041-9.