

Errata: Approximate Air-Fluid Interactions for SPH

This is a correction to the following publication:

Christoph Gissler, Stefan Band, Andreas Peer, Markus Ihmsen, Matthias Teschner, **Approximate Air-Fluid Interactions for SPH**, In *Workshop on Virtual Reality Interaction and Physical Simulation*, The Eurographics Association, 2017.

On page 5, the calculation of the Reynolds number requires an additional factor of 2:

$$Re_i = 2 \frac{\rho_a |\mathbf{v}_{i,\text{rel}}| L}{\mu_a}.$$

On page 4 in Eq. 6, a " +1" is missing in the square root:

$$t^{\text{max}} = -2 \frac{\tan^{-1} \left(\sqrt{t_d^2 \omega^2 + 1} + t_d \omega \right) - \pi}{\omega}.$$

On page 5, Eqs. 7 through 8 require an additional factor of $\frac{1}{2}$ resulting in:

$$y_i^{\text{max}} = \frac{1}{2} \frac{C_F}{C_k C_b} W e_i \underbrace{\left(1 - e^{-\frac{t^{\text{max}}}{t_d}} \left(\cos(\omega t^{\text{max}}) + \frac{1}{\omega t_d} \sin(\omega t^{\text{max}}) \right) \right)}_{=: c_{\text{def}}}$$

and

$$\begin{aligned} y_i^{\text{max}} &= \frac{C_F}{2C_k C_b} \frac{\rho_a \mathbf{v}_{i,\text{rel}}^2 L}{\sigma} c_{\text{def}} \\ &= \mathbf{v}_{i,\text{rel}}^2 \underbrace{\frac{C_F}{2C_k C_b} \frac{\rho_a L}{\sigma}}_{=: y_{\text{coeff}}} c_{\text{def}} \\ &= \mathbf{v}_{i,\text{rel}}^2 y_{\text{coeff}}. \end{aligned}$$