

Erratum to: The effect of Knudsen layers on rarefied cylindrical Couette gas flows

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Published online: 14 March 2013
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Erratum to: Microfluid Nanofluid (2013) 14:31–43 DOI 10.1007/s10404-012-1019-2

The original publication of the article contains errors which need to be amended as mentioned below.

The text immediately after Eq. (8) should read as: “where $p(r)$ describes the probability a molecule will experience a collision while travelling a distance r .”

The corrected version of Fig. 1b is given here.

The corrected version of Eq. (19) is given below:

$$R_2^2 = r^2 + (R^+)^2 + 2rR^+ \cos(\theta^+),$$

After Eq. (20), in the second line of the paragraph text should read as:

“Using half symmetry, it is sufficient to integrate θ^+ from 0 to π .”

The corrected versions of Eqs. (21) to (24) can be written as follows:

The online version of the original article can be found under doi:[10.1007/s10404-012-1019-2](https://doi.org/10.1007/s10404-012-1019-2).

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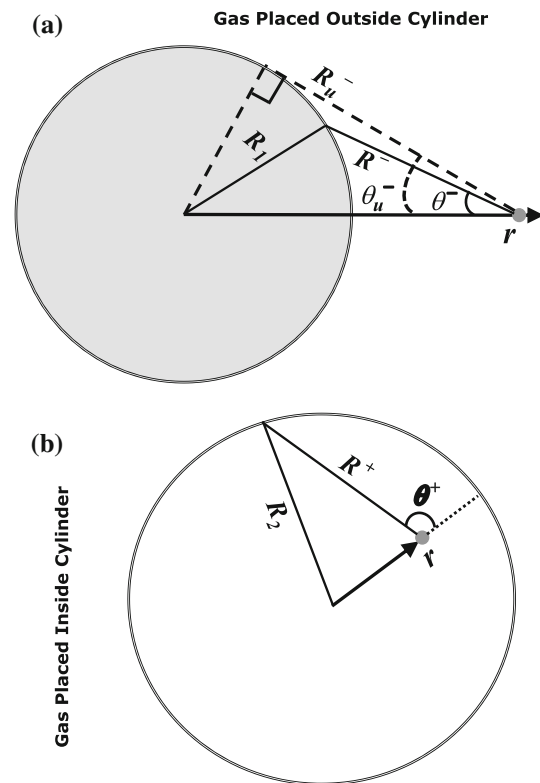


Fig. 1 **a** A gas molecule outside a solid cylinder and situated at a radial distance r from the centre of the cylinder of radius R_1 . R^- is the travelling distance limit for a molecule moving towards the cylinder surface, for a given zenith angle θ^- . The largest travelling distance R_u^- is achieved for the zenith angle direction θ_u^- , above which the molecule by-passes the cylinder surface and travels into the bulk. **b** A gas molecule inside a cylindrical cavity of radius R_2 , at a wall normal distance of $R_2 - r$, where r is the radial distance of the molecule from the centre of the cylinder. The molecule has a traveling distance of R^+ to the wall for a traveling direction of θ^+ , where θ^+ is varied from 0 to π

$$\lambda_{\text{eff(conc)}} = \lambda \left[1 - \frac{1}{\pi} \int_0^{\pi} \left(1 + \frac{R^+(r, \theta^+)}{a} \right)^{(1-n)} d\theta^+ \right], \quad (21)$$

$$\beta_{(i)} = \frac{\lambda_{\text{eff(conc)}}}{\lambda} = 1 - \frac{1}{\pi} \int_0^{\pi} \left(1 + \frac{R^+(r, \theta^+)}{a} \right)^{(1-n)} d\theta^+, \quad (22)$$

$$\lambda_{\text{eff}} = \lambda_{\text{eff(conv)}} \left(\frac{\theta_u^-}{\pi} \right) + \lambda_{\text{eff(conc)}} \left[1 - \left(\frac{\theta_u^-}{\pi} \right) \right], \quad (23)$$

$$\begin{aligned} \beta = & \left(\frac{\theta_u^-}{\pi} \right) \left[1 - \frac{1}{\theta_u^-} \int_0^{\theta_u^-} \left(1 + \frac{R^-(r, \theta^-)}{a} \right)^{(1-n)} d\theta^- \right] \\ & + \left[1 - \left(\frac{\theta_u^-}{\pi} \right) \right] \left[1 - \frac{1}{\theta_u^+} \int_0^{\theta_u^+} \left(1 + \frac{R^+(r, \theta^+)}{a} \right)^{(1-n)} d\theta^+ \right], \end{aligned} \quad (24)$$

In Sect. 2.3, Line 10, the inline equation should be replaced by

$$[1 - (\theta_u^-/\pi)]$$

In Sect. 3.1, line 4 in the first paragraph, the text Fig. 1 is replaced by Fig. 5.