



# THE UNIVERSITY *of* EDINBURGH

## Edinburgh Research Explorer

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

**Citation for published version:**

Dongari, N, Barber, RW, Emerson, DR, Stefanov, SK, Zhang, Y & Reese, JM 2013, 'Erratum to: The effect of Knudsen layers on rarefied cylindrical Couette gas flows' *Microfluidics and nanofluidics*, vol 14, no. 5, pp. 905-906., 10.1007/s10404-013-1164-2

**Digital Object Identifier (DOI):**

[10.1007/s10404-013-1164-2](https://doi.org/10.1007/s10404-013-1164-2)

**Link:**

[Link to publication record in Edinburgh Research Explorer](#)

**Document Version:**

Author final version (often known as postprint)

**Published In:**

Microfluidics and nanofluidics

**General rights**

Copyright for the publications made accessible via the Edinburgh Research Explorer is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

**Take down policy**

The University of Edinburgh has made every reasonable effort to ensure that Edinburgh Research Explorer content complies with UK legislation. If you believe that the public display of this file breaches copyright please contact [openaccess@ed.ac.uk](mailto:openaccess@ed.ac.uk) providing details, and we will remove access to the work immediately and investigate your claim.



Erratum to:

The effect of Knudsen layers on rarefied cylindrical Couette gas flows (Microfluid Nanofluid (2013) 14:31–43)

Nishanth Dongari • Robert W. Barber • David R. Emerson • Stefan K. Stefanov • Yonghao Zhang • Jason M. Reese

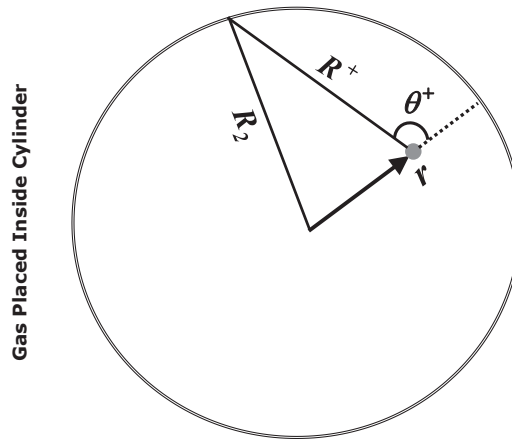


Figure 1: New Figure 1b

### Changes to manuscript number: MFNF 120302

**Correction 1)** Change the text immediately after Equation (8) from

*where  $p(r)$  describes the probability a molecule travels a distance  $r$  with experiencing a collision.*

to the following:

where  $p(r)$  describes the probability a molecule will experience a collision while traveling a distance  $r$ .

**Correction 2)** Replace the existing Fig. (1b) with the new Figure shown above.

**Correction 3)** Modify Eq. (19) to the following:

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

**Correction 4)** After Eq. (20), in the 2nd line, change the text from

*Using quarter symmetry, it is sufficient to integrate  $\theta^+$  from 0 to  $\pi/2$ .*

to the following:

Using half symmetry, it is sufficient to integrate  $\theta^+$  from 0 to  $\pi$ .

**Correction 5)** Modify Eq. (21) to the following:

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

**Correction 6)** Modify Eq. (22) to the following:

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

**Correction 7)** Section 2.3, Line No. 10: change the term  $[1 - (\theta_u^-/\pi)(1 + r/R_2)]$  to the following:

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

**Correction 8)** Replace the existing Eq. (23):

$$\lambda_{\text{eff}} = \lambda_{\text{eff}(\text{conv})} \left( \frac{\theta_u^-}{\pi} \right) + \lambda_{\text{eff}(\text{conc})} \left[ 1 - \left( \frac{\theta_u^-}{\pi} \right) \left( 1 + \frac{r}{R_2} \right) \right],$$

with the following:

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

**Correction 9)** Replace the existing Eq. (24):

$$\beta = \left( \frac{\theta_u^-}{\pi} \right) \left[ 1 - \frac{1}{\theta_u^-} \int_0^{\theta_u^-} \left( 1 + \frac{R^-(r, \theta^-)}{a} \right)^{(1-n)} d\theta^- \right] + \left[ 1 - \left( \frac{\theta_u^-}{\pi} \right) \left( 1 + \frac{r}{R_2} \right) \right] \left[ 1 - \frac{1}{\theta_u^+} \int_0^{\theta_u^+} \left( 1 + \frac{R^+(r, \theta^+)}{a} \right)^{(1-n)} d\theta^+ \right],$$

with the following:

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

**Correction 10)** In section 3.1, line 4 in the first paragraph, correct *Fig. 1* to **Fig. 5**.