Erratum: Higher-order effects in rarefied channel flows [Phys. Rev. E 78, 046301 (2008)]

Henning Struchtrup and Manuel Torrilhon
(Received 19 November 2008; published 16 December 2008)

DOI: 10.1103/PhysRevE.78.069903 PACS number(s): 47.10.ab, 51.10.+y, 05.70.Ln, 99.10.Cd

Due to an unfortunate oversight, for the comparison of second-order slip models we did not properly represent the slip coefficients given by Hadjiconstaninou [1] (Ref. [17] in the original paper).

Hadjiconstaninou gives the following values for the second order slip coefficient β:

Hadjiconstaninou [17] (uncorrected)	Hadjiconstaninou [17] (Kn-layer correction)
$0.606\frac{\pi}{2}=0.952$	$0.31\frac{\pi}{2}=0.487$

where the second value is corrected for Knudsen layer effects. In the paper we used only the first value, which does not account for Knudsen layer effects. Moreover, Hadjiconstantinou reports a first order slip coefficient $\alpha_H=1.11$.

Correspondingly, the curve for Hadjiconstantinou's corrected slip coefficients must be added to Fig. 1.

Clearly, Hadjiconstannou's corrected slip coefficients give an excellent match for Knudsen numbers up to $k\simeq 0.4$. There is a close agreement between the result from the full R13 equations—which explicitly include Knudsen layers—and the curve obtained from Hadjiconstaninou's coefficients that were corrected for Knudsen layer effects.

We thank Ehsan Roohi (Sharif University of Technology, Tehran, Iran) for pointing our attention to this omission.

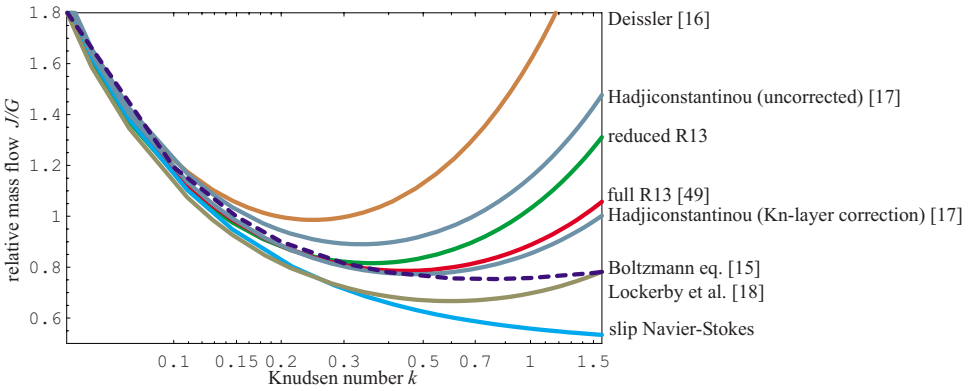

FIG. 1. (Color online) Relative mass flow rate J/G_1 over Ohwada's Knudsen number $k=\frac{4}{5}\sqrt{2}\mathrm{Kn}$, for Boltzmann equation (dashed line) [15], full R13 equations [49], the reduced R13 equations of the present paper, and Navier-Stokes with second-order slip conditions from Deissler [16], Hadjiconstantinou with and without Knudsen layer correction [17], and Lockerby *et al.* [18].

[1] N. G. Hadjiconstantinou, Phys. Fluids **15**, 2352 (2003).

