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(Received 22 March 2005; accepted 31 March 2005; published online 31 May 2005)

[DOI: 10.1063/1.1924482]

In this paper we addressed the problem of computing the viscosity of a highly confined fluid by means of a hydrodynamic constitutive equation that assumes a homogeneous nonlocal viscosity kernel. To simplify the extraction of the kernel we took discrete Fourier transforms (DFTs) of our strain rate and shear stress simulation data and computed the nonlocal viscosity kernel. To simplify the extraction of the dynamic constitutive equation that assumes a homogeneous fluid and not as an absolute position in the pore. There-fore we should not have plotted the nonlocal viscosity on the same plot as the local and Navier–Stokes viscosities, which are quantities that can be represented on an absolute position scale. Comparisons made between the y-dependence of the nonlocal viscosity kernel and the local and Navier–Stokes viscosities were therefore incorrect.

• In the paper we defined the discrete Fourier transforms (DFTs) in the standard way, i.e., as one-sided transforms ranging from 0 to N/2. However, our integrals are over all space, so strictly speaking the DFT should have been defined as two-sided, ranging from −N/2 to N/2. The one- and two-sided transforms are, however, related by a simple symmetry transformation.2 What this means in practice is that the viscosity kernel should be symmetric about \( k_y = 0 \) and \( y = 0 \), with maxima centered at \( \tilde{\eta}(k_y = 0) \) and \( \eta(y = 0) \).

• Related to the above point, the argument in the viscosity kernel \( y \) was incorrectly assumed to be an absolute position within the pore. It should be interpreted as a relative separation. \( \eta(y) \) is essentially a weighting function which, when multiplied by the strain rate and integrated over all \( y \), gives the shear stress at some location in the fluid. The coordinate “\( y \)” for the nonlocal viscosity kernels in Figs. 7 and 8 in the paper must be regarded as a relative distance between two points in the fluid and not as an absolute position in the pore.

[Image: Nonlocal viscosity kernel as a function of relative position \( y \). \( \rho = 0.442, L = 5.1 \). Unlike \( \eta_L(y) \) in the original paper [see Fig. 7(a)], no vertical shifting of the kernel is performed relative to the origin.]

\[ \eta(y') = \eta_L(y + L/2); \quad -L/2 \leq y \leq 0, \]
\[ \eta(y') = \eta_L(y - L/2); \quad 0 \leq y \leq L/2, \quad (1) \]

where \( y \) and \( \eta_L(y) \) refer to the coordinate and kernel in Fig. 7(a) of the paper, respectively, and \( y' \) and \( \eta(y') \).

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respectively, refer to the coordinate and kernel in Fig. 1 of this Erratum.

- As the viscosity kernel is a homogeneous function of relative separation, this precludes the current model from predicting meaningful flow profiles for arbitrary flows. As it currently stands, the current model could only predict a linear flow velocity profile for Couette flow and so Fig. 9 is incorrect. In order to succeed in this goal a fully inhomogeneous kernel needs to be modeled, i.e., \( \gamma(r, \mathbf{r}') \).

A detailed analysis of the current model and its limitations is currently being prepared for publication.