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## Erratum: “Frequency response of cantilever beams immersed in viscous fluids with applications to the atomic force microscope: Arbitrary mode order” [J. Appl. Phys. 101, 044908 (2007)] ✓

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# Erratum: “Frequency response of cantilever beams immersed in viscous fluids with applications to the atomic force microscope: Arbitrary mode order” [J. Appl. Phys. 101, 044908 (2007)]

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Formulas presented for the thermal noise spectra in Eqs. (17a), (17b), and (31) should read

$$|w(x|\omega)|_s^2 = \frac{3\pi k_B T}{2k} \frac{\rho b}{\rho_c h} \frac{C_1^4}{\omega_{vac,1}^2} \sum_{n=1}^{\infty} \frac{\omega \Gamma_i^f(\omega, n)}{|C_n^4 - B_n^4(\omega)|^2} \phi_n^2(x), \quad (17a)$$

$$\left| \frac{\partial w(x|\omega)}{\partial x} \right|_s^2 = \frac{3\pi k_B T}{2k} \frac{\rho b}{\rho_c h} \frac{C_1^4}{\omega_{vac,1}^2} \sum_{n=1}^{\infty} \frac{\omega \Gamma_i^f(\omega, n)}{|C_n^4 - B_n^4(\omega)|^2} \left( \frac{d\phi_n(x)}{dx} \right)^2, \quad (17b)$$

$$|\Phi(x|\omega)|_s^2 = \frac{6\pi k_B T}{k_\Phi} \frac{\rho b}{\rho_c h} \frac{D_1^2}{\omega_{vac,1}^2} \sum_{n=1}^{\infty} \frac{\omega \Gamma_i^t(\omega, n)}{|D_n^2 - A_n^2(\omega)|^2} \gamma_n^2(x). \quad (31)$$

The correction to Eq. (17b) modifies the numerical results in Figs. 2 and 3.

These corrections do not affect the discussion and conclusions, and all other results are unchanged.

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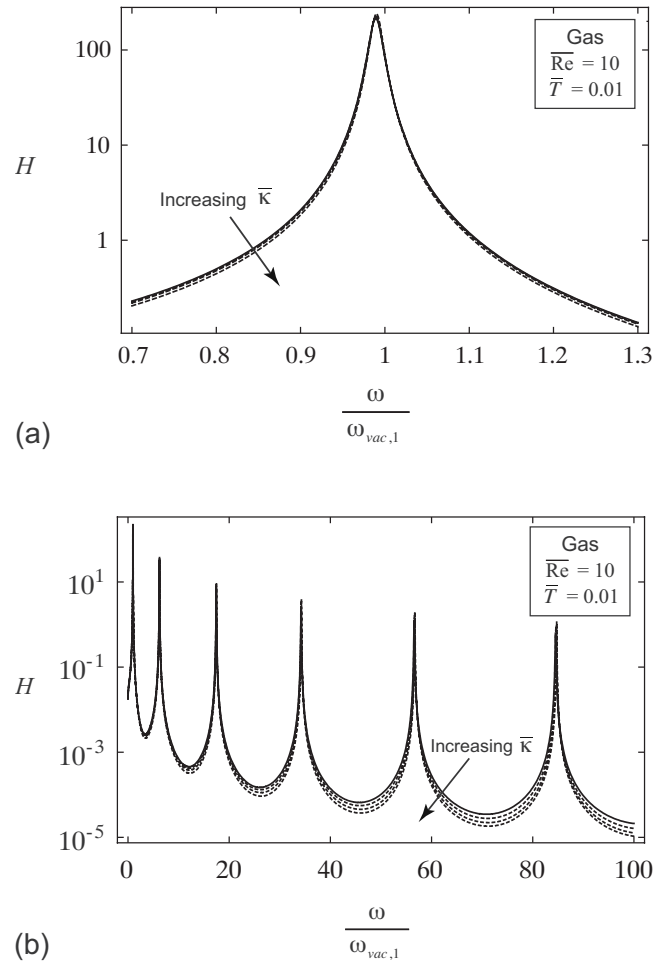


FIG. 2. Normalized thermal noise spectrum (slope)  $H \equiv |w'(x|\omega)|_s^2 k \omega_{vac,1} / (k_B T)$ , Eq. (17b), of the flexural modes in gas. The ' refers to the derivative with respect to  $x$ . Results given for  $\text{Re}=10$ ,  $\bar{T}=0.01$ . Normalized mode numbers  $\bar{\kappa}=0, 0.125, 0.25$ , and  $0.5$  corresponding to  $L/b=\infty, 15, 7.5$ , and  $3.75$ , respectively. Solid line corresponds to  $\bar{\kappa}=0$  result and is identical to Ref. 3. (a) Fundamental mode and (b) first six modes.

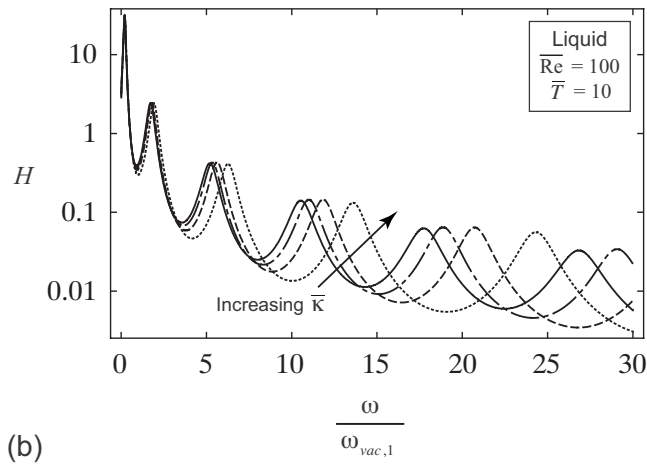
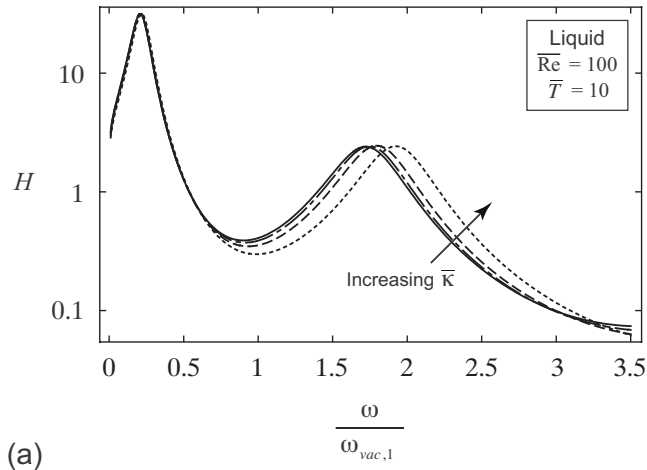


FIG. 3. Normalized thermal noise spectrum (slope)  $H \equiv |w'(x|\omega)|_s^2 k \omega_{vac,1} / (k_B T)$ , Eq. (17b), of the flexural modes in liquid. The ' refers to the derivative with respect to  $x$ . Results given for  $\overline{Re}=100$ ,  $\overline{T}=10$ . Normalized mode numbers  $\overline{k}=0, 0.125, 0.25$ , and  $0.5$  corresponding to  $L/b=\infty, 15, 7.5$ , and  $3.75$ , respectively. Solid line corresponds to  $\overline{k}=0$  result and is identical to Ref. 3. (a) Fundamental mode and (b) first six modes.