Abstract Submitted
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Nano-liquid bridges in ambient conditions WEI KANG, UZI LANDMAN, School of Physics, Georgia Institute of Technology, Atlanta, GA 30332 — The dynamics of nano-liquid bridges in an ambient gaseous environment is studied using molecular dynamics simulations. Under these conditions new behavior close to break-up is found, compared to the behavior in vacuum. The probability for appearance of a long-thread structure close to pinch-off, versus the appearance of a double-cone profile in vacuum, depends on the density of the ambient gas. The stochastic lubrication equation that has been introduced by Moseler and Landman [1] for the case of break-up in vacuum is modified to include an additional term representing the effect of the ambient gas. Numerical integration of the modified stochastic lubrication equation shows good agreement with the molecular dynamics simulations. [1] M. Moseler and U. Landman, Science 289, 1165(2000).

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