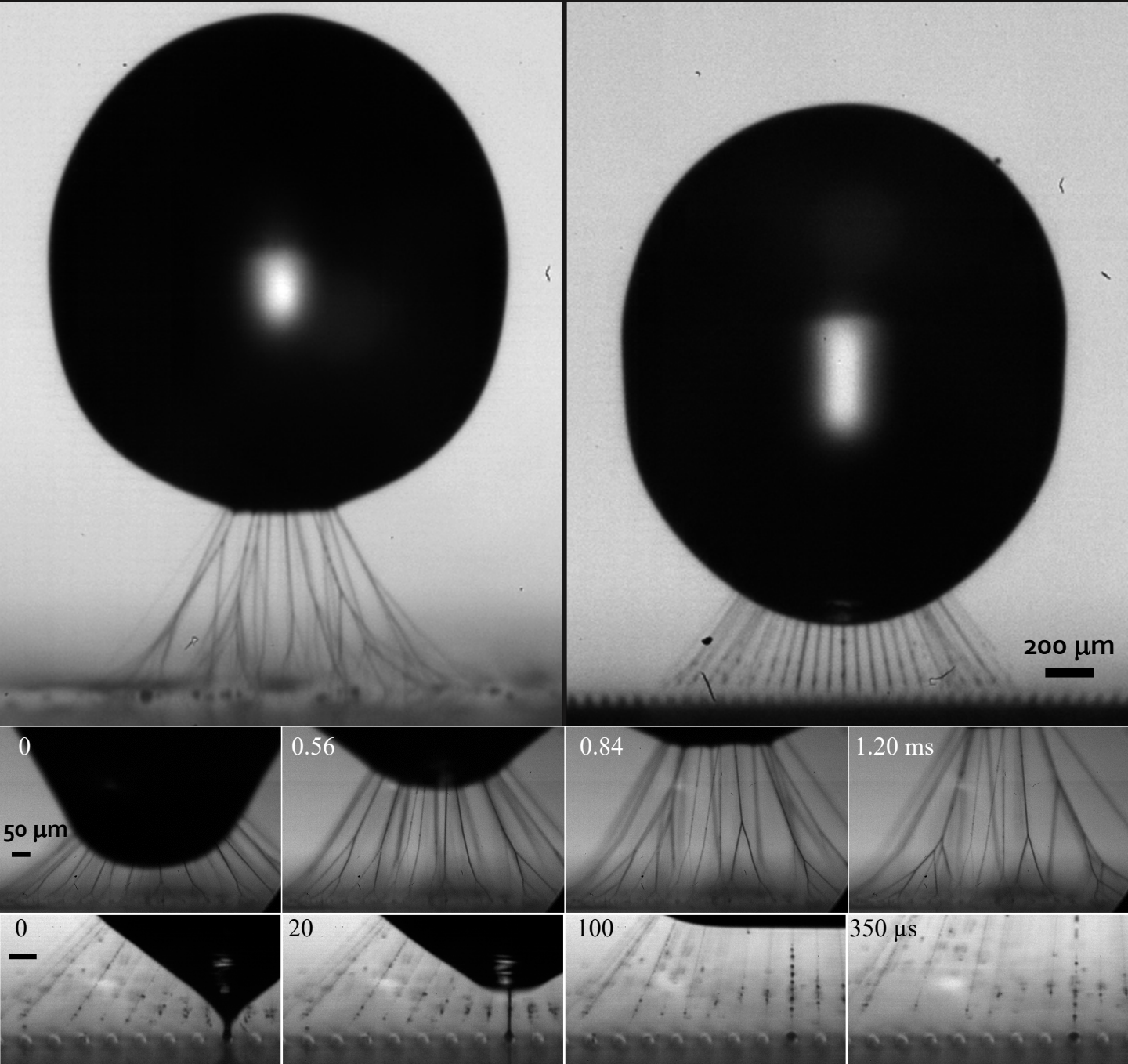


# Bouncing with filaments

Ziqiang Yang, Ali Al Julaih, Sigurdur T. Thoroddsen  
Division of Physical Science and Engineering  
King Abdullah University of Science and Technology (KAUST)



Methods to produce polymer filaments are of primary importance in biology, tissue engineering, medicine, and pharmacology. We use high-speed video imaging to study the impact and bouncing of a polymer drop to generate such filaments. Different filament structures can be pulled from the drop during the bouncing, depending on the intricacies of super-hydrophobic surfaces. The liquid drops comprise distilled water and a very small amount of high molecular weight (4 MDa) polymer - poly(ethylene oxide) (PEO).

[1] V. Bergeron, D. Bonn, J. Y. Martin, and L. Vovelle, "Controlling droplet deposition with polymer additives," *Nature*, vol. 405, no. 6788, p. 772, 2000.

[2] L. Chen, Y. Wang, X. Peng, Q. Zhu, and K. Zhang, "Impact Dynamics of Aqueous Polymer Droplets on Superhydrophobic Surfaces," *Macromolecules*, vol. 51, no. 19, pp. 7817-7827, 2018.