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Coating of a cylindrical fibre: Instability and drop formation ALEJANDRO G. GONZÁLEZ, JAVIER A. DIEZ, ROBERTO GRATTON, Instituto de Fisica Arroyo Seco, Universidad Nacional del Centro de la Provincia de Buenos Aires, DIEGO CAMPANA, FERNANDO SAITA, Intec-Conicet, Universidad Nacional del Litoral, Guemes 3450, Santa Fe, Argentina — The instability of a liquid layer coating a thin cylindrical wire is studied experimentally and numerically with negligible gravity effects. The initial uniform film is obtained as the residual of a sliding drop, and the thickness measurements are performed with an anamorphic optical system. A primary mode grows in the early stages of the instability, and its wavelength λ_1 is not always in agreement with that predicted by the linear theory, λ_m. In later stages, a secondary mode appears, whose wavelength is half that of the primary mode. The behavior of the secondary mode allows us to classify the experiments into two cases, depending on whether it is linearly stable (case I) or unstable (case II). In case I, the amplitude of the secondary mode remains small compared with that of the primary one, while in case II both amplitudes may become very similar at the end. Thus, the distance between the final drops may be quite different from that seen between initial protuberances. The analysis of the experiments allows us to define a simple criterion based on the comparison between λ_1 and λ_m (see Journal of Fluid Mechanics **651**, 117 (2010)).

Javier A. Diez
Instituto de Fisica Arroyo Seco, Universidad Nacional
del Centro de la Provincia de Buenos Aires

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