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Numerical study of drop spreading on a flat surface SHENG WANG, OLIVIER DESJARDINS, Cornell University — In this talk, we perform a numerical study of a droplet on a flat surface with special emphasis on capturing the spreading dynamics. The computational methodology employed is tailored for simulating large-scale two-phase flows within complex geometries. It combines a conservative level-set method to capture the liquid-gas interface, a conservative immersed boundary method to represent the solid-fluid interface, and a sub-grid curvature model at the triple-point to implicitly impose the contact angle of the liquid-gas interface. The performance of the approach is assessed in the inertial droplet spreading regime, the viscous spreading regime of high viscosity drops, and with the capillary oscillation of low viscosity droplets.

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