

Abstract Submitted  
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**Influence of surfactant concentration on satellite formation from the rupture of viscous liquid filaments**<sup>1</sup> EMILIA NOWAK, MARK SIMMONS, University of Birmingham, RICHARD CRASTER, OMAR MATAR, Imperial College London — Drop formation from the rupture of liquid filaments are critically affected by the presence of liquid soluble surfactants, particularly above the critical micelle concentration (CMC). In this paper, we apply the long wave approximation to elucidate the interfacial topology leading to the formation of droplets and satellites from the rupture of a cylindrical fluid filament. The numerical results are compared with experiments performed using aqueous filaments in a continuous phase of silicone oil, using an aqueous phase soluble surfactant (SLES) over a range of concentrations above and below the CMC. Comparisons are made as a function of the capillary number and viscosity of the continuous phase, focusing on the temporal variation in minimum filament radius, contact angle and the number and size of the droplets formed. Similarities and differences between the experiments and the model are noted.

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