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Damped coalescence cascade of a liquid drop SUIN SHIM, HEEJAE JANG, HOWARD STONE, Princeton Univ — A drop of surfactant (sodium dodecyl sulfate) solution, falling on a bath of the same liquid, shows both normal and damped coalescence cascades while the effects of interfacial tension, viscosity, and gravity are strictly controlled. Unlike the normal coalescence cascade where stages of non-coalescence and partial coalescence alternate until the smallest drop totally coalesces, in the damped coalescence cascade regime, there is no apparent residence time between two successive partial coalescence events. We interpret the results by considering the natural vibration of the drop and the bath surface, and its effects on the drainage of the air film between the drop and the bath.

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