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Jet Drops Produced by Bubble Bursting at an Oil-covered Interface ZHENGYU YANG, BINGQIANG JI, JIE FENG, Department of Mechanical Engineering, University of Illinois at Urbana-Champaign — Bursting of bubbles at a fluid-fluid interface is ubiquitous in a wide range of physical, biological, and geological phenomena. It mediates the mass transport across the interface and has consequently received significant attention. Here, we study the jet dynamics produced by bubble bursting at an aqueous surface coated by a layer of oil. The configuration of such a compound air/oil/water interface could represent the natural state of the sea surface microlayer that typifies the oceans, or it can be considered as a model of an oil spill. With high-speed imaging, we document the change of the jet drop size with different oil viscosities and layer thicknesses. We observe that the oil layer damps the capillary waves during cavity collapsing and influences the jetting process, thus changing the jet drop size. Our study not only advances the fundamental understandings of bubble bursting, but may also shed light on the formation of oily aerosols in the ocean regarding pollutant transport.

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