

Abstract Submitted  
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**Impact of a drop containing a bubble onto a liquid surface** SIQI ZHU<sup>1</sup>, MARIE-JEAN THORAV<sup>2</sup>, Xi'an Jiaotong University — We study experimentally the dynamics of a drop containing a bubble falling onto a liquid pool of the same liquid. We first propose an experimental setup to control the formation of this compound drop, controlling its stable formation and the volume of the air bubble. Then we systematically vary the falling height to change the impact velocity. We identify three different regimes by using a dual view high-speed imaging setup to observe the dynamics above and below the pool surface. At low impact velocity, the bubble is pushed into the pool. Above a critical impact velocity, the bubble bursts during the impact, releasing the air bubble before it could be entrapped into the pool. Finally, for higher impact heights, the air drag forces the bursting of the bubble during its falls, before impacting onto the liquid pool. We vary the liquid properties and bubble size to understand these two transitions, and propose some physical explanations.

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