Applying Contact Angles to 3D VOF Simulations of Drop Impact Onto an Inclined Surface MARKUS BUSSMANN, SHAHRIAR AFKHAMI, University of Toronto — Volume-of-fluid, or VOF, methods have been successfully applied in many contexts to the study of normal drop impact onto a solid surface. In such simulations, the application of a contact angle is relatively straightforward, because in axisymmetric coordinates the contact line appears as a triple point. But when the impact is asymmetric, as when a drop impacts an inclined surface, the contact angle boundary condition must be applied along the entire contact line, which is difficult given that the VOF methodology does not explicitly track interfaces. With that as background, we present results of a 3D VOF model applied to the problem of a drop impacting an inclined surface, and focus on the issue of contact angle specification. Several options are presented for applying the boundary condition, inspired by several recent papers that present different approaches for the axisymmetric problem. Results are then presented that quantify the influence of the choice of approach, and results are also compared to known behaviours obtained experimentally.

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