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Numerical studies of relationship between splash and dynamic contact angle KENSUKE YOKOI, VLADIMIR MITKIN, THEO THEOFANOUS, UCSB — We numerically studied splashes on dry surfaces in terms of dynamic contact angle. Our simulation model based on CLSVOF (Coupled level set and Volume-of-Fluid) method, CIP (constraint interpolation profile) method and VISAM3 (Volume/Surface Integrated Average based Multi-Moment Method) has capability to simulate splashes in droplet impact onto flat solid surface. In our simulations, we varied only dynamic advancing contact angle as all other parameters are fixed including equilibrium contact angle. The numerical results show that, as the dynamic advancing contact angle increases, the outer rim of the liquid lamella becomes thick and it seems the number of fingers reduces. On the other hand, we only varied equilibrium angle. However, the equilibrium angel hardly affects the behavior of splashes. We believe that dynamic advancing contact angle is one of key parameters of splashing. We also compared the numerical results with several existing experimental data.

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