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Analogy between coalescence and spreading for water[1] SU JIN LIM, SKKU Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University, E. GRACE KIM, Department of Bio and Brain Engineering, Korea Advanced institute of Science and Technology (KAIST), KAMEL FEZZAA, X-ray Science Division, Advanced Photon Source, Argonne National Laboratory, JUNG HO JE, Department of Materials Science and Engineering, Pohang University of Science and Technology, BYUNG MOOK WEON, School of Advanced Materials Science and Engineering, SKKU Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University — A water drop gently placed on a flat solid surface rapidly spreads, while on a flat water surface, the drop rapidly merges into the water surface. Here we utilize high-speed X-ray microscopy to explore the initial coalescence of a water drop into a flat water surface: there clearly exists analogy in initial dynamics of coalescence and spreading. By comparing experimental and numerical results taken by Lattice Boltzmann simulations, we attribute the analogy to the hydrodynamic nature of water. The coalescence-spreading analogy for water would be important with respect to the universality of coalescence and spreading between liquids and solids (S.J.L. and E.G.K. equally contributed).

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