

Abstract Submitted
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How sedimenting droplets grow and stir the fluid¹ AKSHAY BHATNAGAR, Nordita, KTH Royal Institute of Technology and Stockholm University, Roslagstullsbacken 23, 10691 Stockholm, Sweden, BERNHARD MEHLIG, Department of Physics, Gothenburg University, 41296 Gothenburg, Sweden, DHRUBADITYA MITRA, Nordita, KTH Royal Institute of Technology and Stockholm University, Roslagstullsbacken 23, 10691 Stockholm, Sweden, PRASAD PERLEKAR, TIFR Centre for Interdisciplinary Sciences, Hyderabad — We study a suspension of droplets in the presence of gravitational settling by using Cahn-Hilliard-Navier-Stokes model. In the early stage of time evolution, droplets diffuse and merge into each other. During this stage, the typical size of a droplet L grows as $t^{1/3}$. As the droplet-size becomes larger they sediment and grow faster: L grows as $t^{2/3}$. The settling droplets stir the flow and produce pseudo-turbulence. The kinetic energy of the flow grows as $t^{5/3}$.

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