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On the dispersion of finite-size droplets in isotropic turbulence. M. ROSSO, H. WANG, S. ELGHOBASHI, University of California, Irvine — The paper presents a comparison between the dispersion characteristics of finite size liquid droplets and finite size solid particles in isotropic turbulence at initial $R_\lambda = 75$. The droplets and particles have equal diameters (about 15 times the initial Kolmogorov length scale) and equal densities. The immersed boundary method is used for direct numerical simulations (DNS) of the solid particles case. The level set method is used for DNS of the droplet-laden turbulence where a variable-density projection method is used to impose the incompressibility constraint. We discuss the effects of varying the surface tension (Weber number) of the liquid droplets on their dispersion and acceleration characteristics.

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