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Characterization of the distribution of microparticles in turbulent boundary layers ALFREDO SOLDATI, MAURIZIO PICCIOTTO, CRISTIAN MARCHIOLI, Dipartimento di Energetica e Macchine, University of Udine — In this paper, we examine particle distribution in the wall region of turbulent boundary layers, considering specific flow conditions ($Re_\tau = 150$) and spanning two orders of magnitude of particle inertial parameter, namely the particle timescale. First, we identify the flow timescales that govern particle distribution examining the degree of particle preferential concentration determining the optimum in connection with particle timescale. Second, we identify which of the flow variables may be used to control particle distribution. These are the streamwise and spanwise shear stress components at the wall, which correspond to the only non-vanishing elements of the fluctuating fluid velocity gradient tensor.

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