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Lift force on Bubbles and Particles in a Rotating Cylinder

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We report on lift and drag coefficient measurements of bubbles and particles in a vortex flow. The Strouhal number Sr and Reynolds number Re are $0.1 < Sr < 1$ and $0.01 < Re < 100$ based on the typical bubble radius R_b about 1 mm. An increased drag is found in accordance with numerical experiments in linear shear flow. Negative lift coefficients are found for $0.1 < Re < 3$.

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