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Experimental investigation of orbitally shaken bioreactor hydrodynamics MARTINO RECLARI, MATTHIEU DREYER, MOHAMED FARHAT, Laboratory for Hydraulic Machines - EPFL — The growing interest in the use of orbitally shaken bioreactors for mammalian cells cultivation raises challenging hydrodynamic issues. Optimizations of mixing and oxygenation, as well as similarity relations between different culture scales are still lacking. In the present study, we investigated the relation between the shape of the free surface, the mixing process and the velocity fields, using specific image processing of high speed visualization and Laser Doppler velocimetry. Moreover, similarity parameters were identified for scale-up purposes.

Martino Reclari
Laboratory for Hydraulic Machines - EPFL

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