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Title: Empirical drag closure for polydisperse gas-liquid systems in bubbly flow regime: bubble swarm and micro-scale turbulence

Author: A. Buffo M. Vanni P. Renze D.L. Marchisio

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Highlights

- A CFD-PBM model is used to describe the bubble polydispersity
- A novel empirical drag closure is proposed and tested on six different test cases
- Bubble swarm and micro-scale turbulence effects on drag are considered
- Different bubble columns and stirred tanks from the literature are investigated
- Good agreement between experiments and predictions with a unique set of parameters

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