

Supporting Information

CFD simulation and experimental measurement of gas and solid holdup distributions in a gas-liquid-solid stirred reactor

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Table S1. The mean bubble size in the reactor with a single impeller.

Table S2. The mean bubble size in the reactor with double impellers.

Figure S1. Simulation results with different grid elements ($N=450$ rpm, $V_g=2.21\times 10^{-3}$ m/s, $\alpha_s=4$ vol.%): (a) Radial velocity at $z=0.4$ m; (b) Axial velocity at $z=0.4$ m.

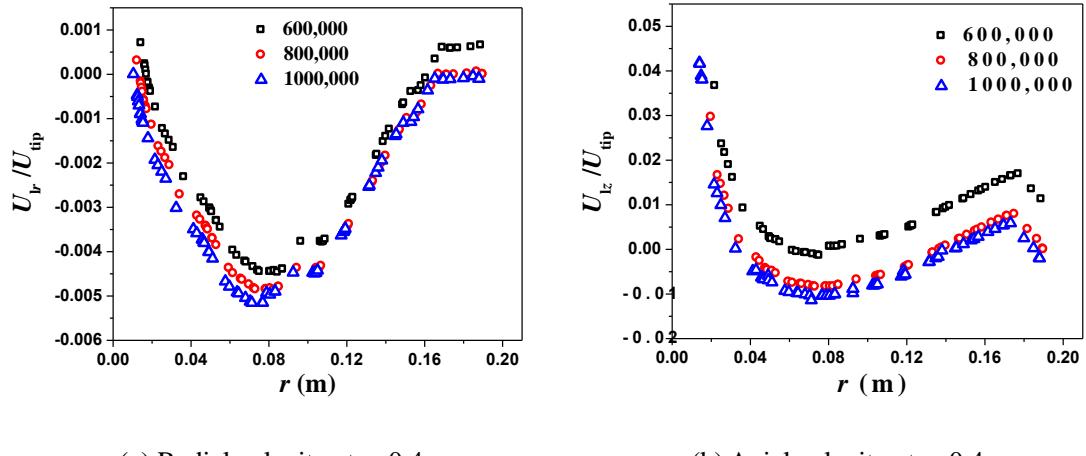
Figure S2. Computational grid of a stirred reactor: (a) Computational domain; (b) PBTD; (c) Gas sparger.

Table S1. The mean bubble size in the reactor with a single impeller.

region	upper	lower	the whole reactor
bubble size (m)	0.0153	0.0063	0.0105

Table S2. The mean bubble size in the reactor with double impellers.

region	upper	lower	the whole reactor
bubble size (m)	0.0077	0.0039	0.0058

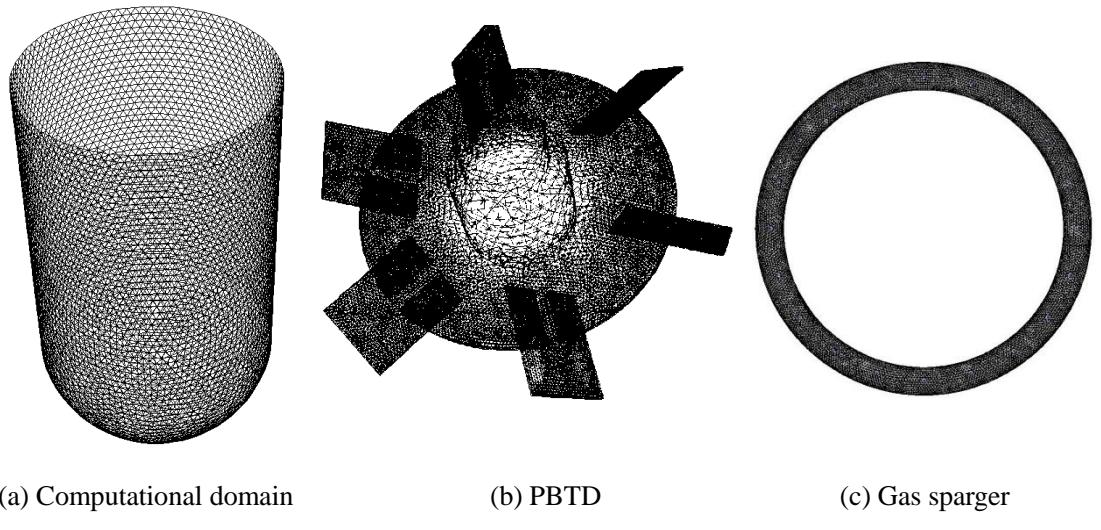


(a) Radial velocity at $z=0.4$ m

(b) Axial velocity at $z=0.4$ m

Figure S1. Simulation results with different grid elements

($N=450$ rpm, $V_g=2.21\times 10^{-3}$ m/s, $\alpha_s=4$ vol.%).



(a) Computational domain

(b) PBTD

(c) Gas sparger

Figure S2. Computational grid of a stirred reactor.