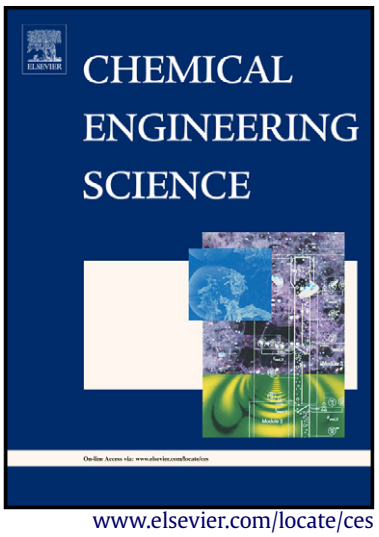

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Heat transfer in turbulent bubbly flow in vertical channels

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This paper examines the convective heat transfer in the turbulent bubbly flow between two parallel walls under a constant heat flux condition with a Reynolds number of up to Re=5600 based on the channel width and average velocity. Direct numerical simulation is used to fully resolve the turbulent flow and the motion of bubbles. The channel is vertical and the flow is directed upward so that nearly spherical bubbles accumulate at the wall but deformable bubbles remain in the middle. The results show that the presence of bubbles enhances the mixing and consequently the heat transfer for both nearly spherical and deformable bubbles, as compared with results for single-phase flows.

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