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Lattice Boltzmann Simulation of Convective Heat Transfer of Non-Newtonian Fluids in Impeller Stirred Tank

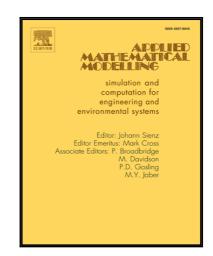
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PII: \$0307-904X(17)30094-X DOI: 10.1016/j.apm.2017.01.088

Reference: APM 11586

To appear in: Applied Mathematical Modelling

Received date: 26 April 2016 Revised date: 19 January 2017 Accepted date: 30 January 2017



Please cite this article as: Chieh-Li Chen, Shing-Cheng Chang, Chih-Yung Chen, Lattice Boltzmann Simulation of Convective Heat Transfer of Non-Newtonian Fluids in Impeller Stirred Tank, *Applied Mathematical Modelling* (2017), doi: 10.1016/j.apm.2017.01.088

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Highlights

- This study applies lattice Boltzmann simulations of power-law fluid flow to a stirred tank.
- Convective heat transfer from an oscillating hot impeller to cold tank walls is studied.
- Influences of impeller size and oscillating amplitude on heat transfer effects are investigated.
- Heat transfer is enhanced by increasing the aspect ratio and oscillation amplitude of impeller.
- Heat transfer effects on tank walls are reduced as the power-law index of fluid increases.

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