

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

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PII: S0307-904X(17)30094-X
DOI: [10.1016/j.apm.2017.01.088](https://doi.org/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](https://doi.org/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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