

Accepted Manuscript

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PII: S1359-4311(17)36953-3
DOI: <https://doi.org/10.1016/j.applthermaleng.2018.04.028>
Reference: ATE 12025

To appear in: *Applied Thermal Engineering*

Received Date: 6 November 2017
Revised Date: 5 February 2018
Accepted Date: 5 April 2018

Please cite this article as: A. Mohammadi, J. Bonilla, R. Zarghami, S. Golshan, A Novel Heat Exchanger Design Method Using a Delayed Rejection Adaptive Metropolis Hasting Algorithm, *Applied Thermal Engineering* (2018), doi: <https://doi.org/10.1016/j.applthermaleng.2018.04.028>

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A Novel Heat Exchanger Design Method Using a Delayed Rejection Adaptive Metropolis Hasting Algorithm

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Highlights

- A novel shell-and-tube heat exchanger design is proposed.
- Reverse Sampling method is used to find the probability distribution of design variables.
- A decision-making strategy based on confidence intervals is proposed
- Significant cost reduction is feasible with respect to optimizations methods.

Abstract

In this study, a shell-and-tube heat exchanger (STHX) design based on seven continuous independent design variables is proposed. Delayed Rejection Adaptive Metropolis hasting (DRAM) was utilized as a powerful tool in the Markov chain Monte Carlo (MCMC) sampling method. This Reverse Sampling (RS) method was used to find the probability distribution of

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