

Accepted Manuscript

A multigrid multilevel Monte Carlo method for transport in the Darcy-Stokes system

Prashant Kumar, Peiyao Luo, Francisco J. Gaspar, Cornelis W. Oosterlee

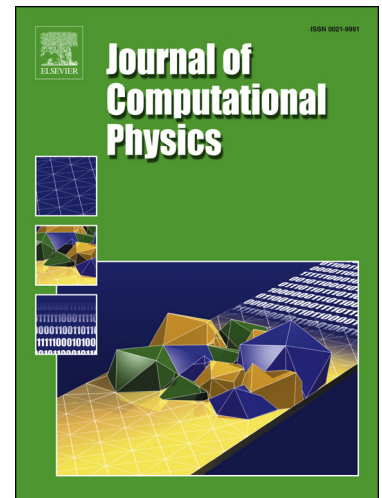
PII: S0021-9991(18)30355-3
DOI: <https://doi.org/10.1016/j.jcp.2018.05.046>
Reference: YJCPH 8046

To appear in: *Journal of Computational Physics*

Received date: 4 September 2017
Revised date: 16 May 2018
Accepted date: 28 May 2018

Please cite this article in press as: P. Kumar et al., A multigrid multilevel Monte Carlo method for transport in the Darcy-Stokes system, *J. Comput. Phys.* (2018), <https://doi.org/10.1016/j.jcp.2018.05.046>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Highlights

- A multilevel Monte Carlo method for transport in the coupled Darcy-Stokes flow is proposed.
- A special discretization for the Beavers–Joseph–Saffman interface condition is described which incorporates the random permeability along the interface.
- A monolithic multigrid solver is presented for the Darcy–Stokes system with random permeability field discretized on a staggered mesh.
- A flux limited QUICK scheme is combined with the ADI method for spatio-temporal discretization of the convection-dominated transport problem.

Download English Version:

<https://daneshyari.com/en/article/6928666>

Download Persian Version:

<https://daneshyari.com/article/6928666>

[Daneshyari.com](https://daneshyari.com)