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Distributed multiscale computing

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List of publications

Journal articles

1. J. Borgdorff, J.-L. Falcone, E. Lorenz, C. Bona-Casas, B. Chopard, and A. G. Hoekstra. Foundations of distributed multiscale computing: Formalization, specification, and analysis. *Journal of Parallel and Distributed Computing*, 73: 465–483, 2013. doi: 10.1016/j.jpdc.2012.12.011
2. D. Groen, J. Borgdorff, C. Bona-Casas, J. Hetherington, R. W. Nash, S. J. Zasada, I. Saverchenko, M. Mamonski, K. Kurowski, M. O. Bernabeu, A. G. Hoekstra, and P. V. Coveney. Flexible composition and execution of high performance, high fidelity multiscale biomedical simulations. *Interface Focus*, 3(2): 20120087, Apr. 2013. doi: 10.1098/rsfs.2012.0087
3. J. Borgdorff, M. Mamonski, B. Bosak, K. Kurowski, M. Ben Belgacem, B. Chopard, D. Groen, P. V. Coveney, and A. G. Hoekstra. Distributed Multiscale Computing with MUSCLE 2, the Multiscale Coupling Library and Environment. *Journal of Computational Science*, in press, 2014. doi: 10.1016/j.jocs.2014.04.004
4. J. Borgdorff, M. Ben Belgacem, C. Bona-Casas, L. Fazendeiro, D. Groen, O. Hoenen, A. Mizeranschi, J. L. Suter, D. P. Coster, P. V. Coveney, W. Dubitzky, A. G. Hoekstra, P. Strand, and B. Chopard. Performance of Distributed Multiscale Simulations. *Phil. Trans. R. Soc. A*, *accepted*, 2014
5. B. Chopard, J. Borgdorff, and A. G. Hoekstra. A Framework for multiscale modelling. *Phil. Trans. R. Soc. A*, *accepted*, 2014

Conference proceedings

1. J. Borgdorff, M. Mamonski, B. Bosak, D. Groen, M. Ben Belgacem, K. Kurowski, and A. G. Hoekstra. Multiscale Computing with the Multiscale Modeling Library and Runtime Environment. *Procedia Computer Science*, 18:1097–1105, Jan. 2013. doi: 10.1016/j.procs.2013.05.275
2. M. Ben Belgacem, B. Chopard, J. Borgdorff, M. Mamonski, K. Rycerz, and D. Harezlak. Distributed Multiscale Computations Using the MAPPER Framework. *Procedia Computer Science*, 18:1106–1115, 2013. doi: 10.1016/j.procs.2013.05.276
3. S. J. Zasada, M. Mamonski, D. Groen, J. Borgdorff, I. Saverchenko, T. Piontek, K. Kurowski, and P. V. Coveney. Distributed Infrastructure for Multiscale Computing. In *2012 IEEE/ACM 16th International Symposium on Distributed Simulation and Real Time Applications (DS-RT)*, pages 65–74. IEEE, 2012. ISBN 978-1-4673-2954-5. doi: 10.1109/DS-RT.2012.17
4. J. Borgdorff, C. Bona-Casas, M. Mamonski, K. Kurowski, T. Piontek, B. Bosak, K. Rycerz, E. Ciepiela, T. Gubała, D. Harezlak, M. Bubak, E. Lorenz, and A. G. Hoekstra. A Distributed Multiscale Computation of a Tightly Coupled Model Using the Multiscale Modeling Language. *Procedia Computer Science*, 9:596–605, 2012. doi: 10.1016/j.procs.2012.04.064
5. J. Borgdorff, J.-L. Falcone, E. Lorenz, B. Chopard, and A. G. Hoekstra. A principled approach to distributed multiscale computing, from formalization to execution. In *Proceedings of the IEEE 7th International Conference on e-Science Workshops*, pages 97–104, 5-8 Dec. 2011, Stockholm, Sweden, 2011. IEEE Computer Society Press. doi: 10.1109/eScienceW.2011.9
6. B. Chopard, J.-L. Falcone, A. G. Hoekstra, and J. Borgdorff. A Framework for Multiscale and Multiscience Modeling and Numerical Simulations. In C. Calude, J. Kari, I. Petre, and G. Rozenberg, editors, *LNCS 6714*, pages 2–8. Springer-Verlag Berlin Heidelberg, 2011. ISBN 978-3-642-21340-3. doi: 10.1007/978-3-642-21341-0_2

Conference posters

1. O. Hoenen, L. Fazendairo, B. D. Scott, J. Borgdorff, A. G. Hoekstra, P. Strand, and D. P. Coster. Designing and running turbulence transport simulations using a distributed multiscale computing approach. In *EPS 2013, Europhysics Conference Abstracts*, 37D, page P4.155, 2013. ISBN 2-914771-84-3

Invited internet articles

1. J. Borgdorff, D. Groen, S. Ferlin, I. Saverchenko, J. L. Suter, A. G. Hoekstra, and P. V. Coveney. Multiscale Simulations on distributed European e-Infrastructures. *inSiDE*, 10(1), Apr. 2012. URL: http://inside.hlrz.de/html/Edition_01_12/article_24.html
2. J. Borgdorff, D. Groen, and M. Mamonski. Adding MUSCLE to Multiscale Simulations. *HPCWire*, 2013. URL: <http://www.hpcwire.com/2013/12/11/adding-muscle-multiscale-simulations/>