

## Publications in Refereed Journals (Appeared or Accepted)

1. Z.L. Xu, J. Lioi, J. Mu, M.M. Kamocka, X. Liu, D.Z. Chen, E.D. Rosen, and M.S. Alber, "A Multiscale Model of Venous Thrombus Formation with Surface-Mediated Control of Blood Coagulation Cascade", *Biophysical Journal*, 2010 (to appear).
2. Z.L. Xu, G. Lin "Spectral/hp element method with hierarchical reconstruction for solving nonlinear hyperbolic conservation laws", *Acta Mathematica Scientia*, 29(B):1737-1748, 2009.
3. Y.J. Liu, C.-W. Shu and Z.L. Xu, "Hierarchical Reconstruction with up to Second Degree Remainder for Solving Nonlinear Conservation Laws", *Nonlinearity*, 22:2799-2812, 2009.
4. Z.L. Xu, Y.J. Liu, C.-W. Shu, "Hierarchical Reconstruction for Spectral Volume Methods on Unstructured Grids", *Journal of Computational Physics*, Vol 228(16):5787-5802, 2009.
5. Z.L. Xu, Y.J. Liu, C.-W. Shu, "Hierarchical Reconstruction for Discontinuous Galerkin Methods on Unstructured Grids with WENO Type Linear Reconstruction", *Journal of Computational Physics*, Vol 228:2194-2212, 2009.
6. Z.L. Xu, Nan Chen, Malgorzata Kamocka, Elliot Rosen and Mark Alber, "Study of Blood Flow Effects on Growth of Thrombi Using a Multiscale Model", *Soft Matter*, Vol5:769-779, 2009.
7. J. Mu, X. Liu, M.M. Kamocka, Z. Xu, M.S. Alber, E.D. Rosen, and D.Z. Chen, "Segmentation, Reconstruction, and Analysis of Blood Thrombi in 2-Photon Microscopy Images," *Proceedings of 22nd IEEE Symposium on Computer-Based Medical Systems (CBMS)*, Albuquerque, New Mexico, August 3-4, 2009 (to appear).
8. Xu, Z., J. Lioi, J. Mu, X. Liu, D.Z. Chen, M.M. Kamocka, E.D. Rosen and M.S. Alber. "Combined Experimental and Simulation Study of Blood Clot Formation", *Proceedings of the IEEE TIC-STH-SENCS*, Sep 26-27, 2009, Toronto, Canada (to appear).
9. Xu, Z.L., Chen, N., Kamocka, M.M., Rosen, E.D., and M.S. Alber, Multiscale Model of Thrombus Development, *Journal of the Royal Society Interface* Vol4, No24, 705-723, 2008.
10. T. Lu, Z.L. Xu, R. Samulyak, J. Glimm and X. M. Ji, "Dynamic Phase Boundaries for Compressible Fluids", *Siam J. on Scientific Computing*, Vol 30, Issue 3, 895-915, 2008.
11. Z.L. Xu, James Glimm, Yongming Zhang, and Xinfeng Liu, "A Multiscale Front Tracking Method for Compressible Free Surface Flows", *Chemical Engineering Science*, Volume 62, Issue 13, July 2007, Pages 3538-3548, 2007.
12. Roman Samulyak, Jian Du, James Glimm, Zhiliang Xu, "A Numerical Algorithm for MHD of Free Surface Flows at Low Magnetic Reynolds Numbers", *Journal of Computational Physics*, Vol 226, 2, 1532-1549, 2007.
13. Z.L. Xu, M. Kim, W. Oh, J. Glimm, R. Samulyak, X.L. Li and C. Tzanos, "Discrete Bubble Modeling of Unsteady Cavitating Flow", *International Journal for Multiscale Computational Engineering*, Issue5-6, Vol4, 2006.

14. R. Samulyak, Yarema Prykarpatskyy, Tianshi Lu, James Glimm, Zhiliang Xu, M.N.Kim, "Comparison of Heterogeneous and Homogenized Numerical Models of Cavitation", International Journal for Multiscale Computational Engineering, Issue3, Vol4, 2006.
15. James Glimm, M.-N. Kim, X.-L. Li, R. Samulyak and Z.-L. Xu, "Jet Simulation in a Diesel Engine", accepted for publication in Proceedings of the third MIT Conference on Computational Fluid and Solid Mechanics, 2004.
16. E. George, J. Glimm, X.L.Li, A. Marchese, Z.-L. Xu, J.W.Grove, and D. Sharp. "Numerical methods for the determination of mixing", Laser and Particle Beams (2003), 21, 437-442.
17. J. Glimm, X.-L. Li, Z.-L. Xu, "Front Tracking Algorithm Using Adaptively Refined Meshes", Proceedings of the 2003 Chicago Workshop on Adaptive Mesh Refinement Methods, Adaptive Mesh Refinement - Theory and Applications, the Lecture Notes in Computational Science and Engineering, ISSN: 1439-7358.
18. J. Glimm, X.-L. Li, Y.-J. Liu, Z.-L. Xu, N. Zhao, "Conservative Front Tracking with Improved Accuracy", SIAM J. of Numerical Analysis, 41, No. 5, 2003.
19. E. George, J. Glimm, X.-L. Li, A. Marchese, Z.-L. Xu, "A Comparison of experimental, theoretical, and numerical simulation Rayleigh-Taylor mixing rates", Proceedings of the National Academy of Science. March 5, 2002, vol. 99, no.5.
20. J. Glimm and J. W. Grove and X. L. Li and Yingjie Liu and Zhiliang Xu, "Unstructured grids in 3D and 4D for time-dependent interface in front tracking with improved accuracy", Proc. 8th Int. Conf. Num. Grid Generation in Comp. Field Simulations. 179-188, 2002.
21. E. George, J. Glimm, J. W. Grove, X.-L. Li, Y.-J. Liu, Z.-L. Xu and N. Zhao, "Simplification, Conservation and Adaptivity in the Front Tracking Method", the Proceedings of Ninth International Conference on Hyperbolic Problems, Hyp2002.
22. E. George, J. Glimm, J. W. Grove, X.-L. Li, A. Marchese, D. Sharp, and Z.-L. Xu, "Numerical Methods for Determination of Rayleigh-Taylor Mixing", Proceedings of Mix01.

## **Preprints**

1. Z.L. Xu and Y.J. Liu, "A Conservation Constrained Runge-Kutta Discontinuous Galerkin Method with the Improved CFL Condition for Conservation Laws", submitted to J. Comput. Phys.