

Chichia Chiu

Publications:

- [1] *Convergence of a higher order vortex method for the two dimensional incompressible Euler equations*, (coauthor: R. A. Nicolaides), *Math. Comp.*, Vol.51, No.184(1988), pp507-534. [View PDF.](#)
- [2] *A numerical method for nonlinear age dependent population models*, *Differential and Integral Equations*, Vol.3, No.4, (1990), pp767-782. [View PDF.](#)
- [3] *Nonlinear age-dependent models for prediction of population growth*, *Math. Biosciences*, Vol.99 (1990), pp119-133. [View PDF.](#)
- [4] *An optimal Runge-Kutta method for steady state solutions of hyperbolic systems*, (Coauthor: D. A. Kopriva), *SIAM J. Numer. Anal.*, Vol. 29 (1992), No.2, pp425-438. [View PDF.](#)
- [5] *Error Estimates of the Markov Finite Approximation of the Frobenius-Perron Operator*, (Coauthors: T.Y. Li & Q. Du), *Nonlinear Anal., Theory, Methods and Applications*, Vol. 19, No. 4, pp.291-308, 1992. [View PDF.](#)
- [6] *A Particle Method for Population Shock Waves with Application to Synchronization of Bacterial Culture Growth*, (Coauthor: F.C.~Hoppensteadt) *Proceeding of World Congress of Nonlinear Analysts 1992.* [View PDF.](#)
- [7] *Optimal one-stage and two-stage schemes for steady state solutions of hyperbolic equations*, *Applied Numer. Math.*, 11(1993), pp475-496. [View PDF.](#)
- [8] *An ADI Method for Reaction-Diffusion Equations with Applications in Pattern Formation*, *Proceedings of Conference on Scientific and Engineering Computing for Young Chinese Scientists*, 1993, National Defence Industry Press, China. [View PDF.](#)
- [9] *Optimal m-Stage Runge-Kutta Schemes for steady state solutions of hyperbolic equations*, (Coauthor: M. Chen), *Numer. Methods for PDE*, 9, pp643--666(1993). [View PDF.](#)
- [10] *A Particle Method for Population Waves*, (Coauthor: F.C. Hoppensteadt), *SIAM J. Applied Math.*, Vol.54, No.2, pp.466--477(1994). [View PDF.](#)
- [11] *Analysis and Computer Simulation of Accretion Patterns in Bacteria Cultures*, (Coauthors: F.C. Hoppensteadt & W. Jager), *J. Math. Biology*, (1994) 32: pp841--855. [View PDF.](#)
- [12] *Region-Dependent optimal m-stage Runge-Kutta schemes for solving a class of nonsymmetric linear systems*, (coauthor: M. Chen), *Linear Algebra and Its Appl.*, 212/213:523--546(1994). [View PDF.](#)

- [13] *Chemical Reactor Modeling*, in A. Friedman and R. Gulliver, editors, Math. Modeling for Instructors, (team work), IMA preprint series \#~1254, Univ. of Minnesota, 1994. [View PDF.](#)
- [14] *An ADI Method for Hysteretic Reaction-Diffusion Systems*, (coauthor: N. Walkington), SIAM J. on Numer. Anal., Vol.34(1997), No.3., pp. 1185--1206. [View PDF.](#)
- [15] *Modeling Microbial Chemotaxis in a Diffusion Gradient Chamber*, (coauthors: M. T. Widman, D. Emerson and R. M. Worden), Biotechnology and Bioengineering, 1997 Jul 5;55(1):191-205.. [View PDF.](#)
- [16] *Existence, Uniqueness and Numerical Analysis of Hysteretic Reaction-Diffusion Systems*, (coauthor: N. Walkington), Quarterly of Appl. Math., (1998) Vol.LVI, No.1, pp89--106. [View PDF.](#)
- [17] *Mathematical Model and Simulation of Bacterial Growth and Chemotaxis in a Diffusion Gradient Chamber*, (coauthor: F. C. Hoppensteadt), J. of Math. Biology, (2001)Vol.42, No.2, pp120--144. [View PDF.](#)
- [18] *Numerical Analysis of the Flux force Generated by a Correlation Ratchet Mechanism*, (coauthor: C. Peskin), J. of Math. Biology, 44, 479--501 (2002). [View PDF.](#)
- [19] *A Multigrid Method for Pattern Formation Problems in Biology*, (Coauthor: Hsiu-Chuan Wei), Differential and Integral Equations, (2003) Vol.16, No.2., pp201--220. [View PDF.](#)
- [20] *An Optimal Explicit Method for Solving Reaction-Diffusion-Chemotaxis Systems*, (Coauthor: Jui-Ling Yu), Mathematical Biosciences and Engineering, (2007) Vol4, #2, pp187--203. [View PDF.](#)
- [21] *Image Processing and Analysis for Quantifying Gene Expression from Early Drosophila Embryos*, (Co-authors: A. Ay et al), Tissue Engineering, Part A. September 2008, 14(9): 1517-1526. [View PDF.](#)
- [22] *Depression and Plasma Amyloid Peptides in the Elderly with and without the Apolipoprotein E4 Allele*, (Co-authors: Xiaoyan Sun et al), ADAD (ALZHEIMER DISEASE & ASSOCIATED DISORDERS), (2009) Volume: 23, Issue: 3, 238-244. [View PDF.](#)
- [23] *A two-scale mathematical model for DNA transcription*, (Co-authors: D. Arnosti, et al), Mathematical Biosciences 236(2012), pp132-140. [View PDF.](#)
- [24] *Soluble electron shuttles can mediate energy taxis toward insoluble electron acceptors*, (Co-authors: R. Li, et al), Environmental science technology (2012) Volume: 46, Issue: 5, pp2813-20. [View PDF.](#)
- [25] *Two-Layer Mathematical Modeling of Gene Expression: Incorporating DNA-level Information and System Dynamics*, (co-authors: J. Dresch, et al), SIAM J. Appl. Math. (2013), 73(2), 804--826. [View PDF.](#)