

CURRICULUM VITAE

Name: I-Liang Chern
Current Address: Department of Mathematics
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Education

Ph.D.	1983	Mathematics	Courant Institute, New York Univ.
M.Sc.	1978	Mathematics	National Taiwan University, Taipei
B.Sc.	1975	Mathematics	National Taiwan University, Taipei

Professional Experience

Professor	National Taiwan University	1991–present
Visiting Professor	Nat'l Univ. of Singapore	summer, 1998
Visiting Professor	U.C. Berkeley	1996-1997
Assistant Mathematician	Argonne National Lab.	1989–1991
Research Assistant Professor	Courant Institute	1987–1989
Research Associate Fellow	Academia Sinica	1983–1987
Post-doctoral Fellow	MSRI, Berkeley	Feb.-Aug. 1984

Research Interests

- Scientific Computing
- Numerical Partial Differential Equations
- Image processing
- Hyperbolic Conservation Laws

Awards

Outstanding research award, NSC, 1992-1993.

Editorial Board

- Journal of Computational Mathematics, editor, 2006-now

Academic Services

- Vice President of the Chinese Mathematical Society, 2002-2004
- Executive committee member, Asia section, Society of Industrial and Applied Mathematics, 2005-now.

JOURNAL PUBLICATIONS

- [1] Chang, Chien-Cheng, Yu-Chen Shu and I-Liang Chern, “Solving guided wave modes in plasmonic crystals,” *Phys. Rev. B* **78**, 035133 (2008). (**SCI**)
- [2] Chern, I-Liang and Yu-Chen Shu, “Coupling interface method for elliptic interface problems,” *Journal of Computational Physics*, Vol. 225, No. 2, pp.2138-2174 (2007). (**SCI**)
- [3] Bao, Weizhu, I-Liang Chern and Fong Yin Lim, “Efficient and spectrally accurate numerical methods for computing ground and first excited states in Bose-Einstein condensates,” *Journal of Computational Physics*, no. 2, pp. 836-854 (2006).(**SCI**)
- [4] Tzeng, Jengnan, Wen-Liang Huang and I-Liang Chern, “An Asymmetric subspace watermarking method for copyright protection,” *IEEE Transactions on Signal Processing*, Vol. 53, No. 2, pp. 1-9(2005). (**SCI**)
- [5] I-Liang Chern, Jian-Guo Liu and Wei-Cheng Wang, “Accurate Evaluation of Electrostatics for Macromolecules in Solution,” *Methods and Applications of Analysis*, Vol. 10, No. 2, pp. 309-328 (2003).
- [6] Chang, Qiangshun and I-Liang Chern, “Acceleration methods for total variation-based image denoising,” *SIAM J. Sci. Comp.*, Vol. 25, No. 3, pp. 982-994 (2003).(**SCI**)
- [7] Zhilin Li, Wei-Cheng Wang, I-Liang Chern and Ming-Chih Lai, “New Formulation and Fast Poisson Solvers for Interface Problems in Polar coordinates,” *SIAM J. Sci. Comp.*, Vol. 25, No. 1, pp. 224-245 (2003).(**SCI**)
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- [9] Chern, I-L. and C.-C. Yen, “Difference wavelet – theory and a comparison study,” *Methods and Applications of Analysis*, Vol. 9, No. 4, pp. 469-492 (2002).

- [10] Chern, I-L., “Local and global interaction for nongenuinely nonlinear hyperbolic systems of conservation laws,” *Indiana University Mathematics Journal*, **49** No. 3 (2000) 1199-1228. (SCI)
- [11] Chern, I-L. and Ming Mei, “Asymptotic stability of critical viscous shock wave for a degenerate hyperbolic conservation law,” *Comm. Partial Differential Equations* **23** (1998) 869-886 (SCI)
- [12] Chern, I-L., “Long-time effect of relaxation for hyperbolic conservation laws,” *Comm. Math. Phys.* **172** (1995). (SCI)
- [13] Yang, X.-L., I-L. Chern, N. Zabusky, R. Samtaney and J. Hawley, “Vorticity generation and evolution in shock-accelerated density-stratified interfaces,” *Phys. Fluid A* **4**, no. 7 (1992) 1531-1540. (SCI)
- [14] Chern, I-L. and I. Foster, “Parallel implementation of a control method for solving PDEs on the sphere,” *Parallel Processing for Scientific Computing*, 301-306, SIAM, Philadelphia, PA, (1992).
- [15] Chern, I-L., T. Colin and H. Kaper, “Classical solutions of the nondivergent barotropic equations on the sphere,” *Comm. in Partial Differential Equations* **17** no.5 & 6, (1992) 1001-1019. (SCI)
- [16] Chern, I-L., “Multiple-mode diffusion waves for viscous non-strictly hyperbolic conservation laws,” *Comm. Math. Phys.* **138** (1991) 51-61. (SCI)
- [17] Chern, I-L., “Large-time behavior of solutions of Lax-Friedrichs finite difference equations for hyperbolic systems of conservation laws,” *Math. Comp.* **56**, no. 193 (1991) 107-118. (SCI)
- [18] Yang, X.-L., N. Zabusky, and I-L. Chern, “Vortex dipoles in shock accelerated density stratified layers,” *Phys. Fluid A* **2** no.6 (1990), 892-895. (SCI)
- [19] Chern, I-L., “Stability theorem and truncation error analysis for the Glimm scheme and for a front tracking method for flows with strong discontinuities,” *Comm. Pure Appl. Math.* **42** (1989), 815-844. (SCI)
- [20] Chern, I-L. and T.-P. Liu, “Convergence to diffusion waves of solutions for viscous conservation laws,” *Comm. Math. Phys.* **110** (1987), 503-517. (SCI)
- [21] Chern, I-L. and P. Colella, A conservative front tracking method for hyperbolic conservation laws, UCRL-97200,

Lawrence Livermore National Laboratory, Livermore, CA,
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“Front tracking for gas dynamics,” *J. Comp. Phys.* **62** (1986)
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BOOKS

- [1] You-lan Zhu, Xiaonan Wu and I-Liang Chern, “Derivative Securities and Difference Methods,” Springer, (2004) pp. 1-513.
- [2] I-Liang Chern, “Financial Mathematics,” Dept. of Math, National Taiwan Univ. (2000), pp.1-103.
- [3] I-Liang Chern, “Mathematical Modeling and Ordinary Differential Equations,” Dept. of Math., National Taiwan Univ. (2007), pp.1-141.