

Liu, Tai-Ping

Curriculum Vitae

Born: November 18, 1945 in Rep. of China, Taiwan

EDUCATION

Institution	Degree	Date Awarded
National Taiwan University	B.S.	1968
Oregon State University	M.S.	1970
The University of Michigan	Ph.D.	1973

EXPERIENCE IN HIGHER EDUCATION

Institution	Rank	Dates
University of Maryland	Assistant Professor	1973-78
University of Maryland	Associate Professor	1978-81
University of Maryland	Professor	1981-88
Courant Institute	Professor	1988-1990
Stanford University	Professor	1990-2008
	Professor Emeritus	2008-present
Institute of Mathematics, Academia Sinica, R.O.C.	Distinguished Research Fellow	2000-present

Selected publications

1. The Riemann problem for general 2x2 conservation laws, *Trans. Amer. Math. Soc.* 199 (1974), 89-112.
2. The Riemann Problem for general systems of conservation laws, *J. Diff. Equations*, 18 (1975), 218-234.
3. The deterministic version of the Glimm scheme *Comm. Math. Phys.* 57 (1977), no. 2, 135-148.
4. Decay to N -waves of solutions of general systems of nonlinear hyperbolic conservation laws *Comm. Pure Appl. Math.* 30 (1977), no. 5, 586-611.
5. Admissible solutions of hyperbolic conservation laws, *Memoirs, Amer. Math. Soc.*, No. 240, 1981.
6. Nonlinear stability and instability of transonic flows through a nozzle, *Comm. Math. Phys.*, 83 (1982), 243-260.
7. Nonlinear stability of shock waves for viscous conservation laws, *Memoirs, Amer. Math. Soc.*, No. 328, 1985.
8. Hyperbolic conservation laws with relaxation, *Comm. Math. Phys.* 108(1987) 153-175.
9. (with Gui-Qiang Chen and David Levermore) Hyperbolic conservation laws with stiff relaxation terms and entropy, *Comm. Pure Applied Math.*, 47(1994), 787-830.

10. Gas flows with damping and vacuum, *Japan J. Indus. and Appl. Math.*, 13(1996), 25-32.
11. (with Zeng, Yanni) Large time behavior of solutions for general quasilinear hyperbolic-parabolic systems of conservation laws *Mem. Amer. Math. Soc.* 125 (1997), no. 599, viii+120 pp.
12. (with Yu, Shih-Hsien) Continuum shock profiles for discrete conservation laws. I. Construction *Comm. Pure Appl. Math.* 52 (1999), no. 1, 85-127.
13. (with Yang, Tong) A new entropy functional for a scalar conservation law, *Comm. Pure Appl. Math.* 52 (1999), no. 11, 1427-1442.
14. (with Yang, Tong) Well-posedness theory for hyperbolic conservation laws, *Comm. Pure Appl. Math.* LII (1999), 1553-1586.
15. (with Bressan, Alberto; Yang, Tong) L1 stability estimates for nxn conservation laws, *Arch. Ration. Mech. Anal.* 149 (1999), no. 1, 1-22.
16. (with Liu, Tai-Ping; Tommaso, Ruggeri) Entropy production and admissibility of shocks *Acta Math. Appl. Sin. Engl. Ser.* 19 (2003), no. 1, 1-12.
17. (with Yu, Shih-Hsien) Boltzmann equation: micro-macro decompositions and positivity of shock profiles. *Comm. Math. Phys.* 246 (2004), no. 1, 133-179.
18. (with Yu, Shih-Hsien) The Green's function and large-time behavior of solutions for the one-dimensional Boltzmann equation, *Comm. Pure Appl. Math.* 57 (2004), no. 12, 1543-1608.
19. (with Elling, Volker) The ellipticity principle for self-similar potential flows, *J. Hyperbolic Differ. Equ.* 2 (2005), no. 4, 909-917.
20. (with Yu, Shih-Hsien) Green's function of Boltzmann equation, 3-D waves. *Bull. Inst. Math. Acad. Sin. (N.S.)* 1 (2006), no. 1, 1-78.
21. (with Elling, Volker) Supersonic flow onto a solid wedge, *Comm. Pure Appl. Math.* 61(2008), no. 10, 1347-1448.
22. (with Yu, Shih-Hsien) Invariant manifolds for steady Boltzmann flows and applications, *Arch. Ration. Mech. Anal.* 209 (2013), no. 3, 869-997.
23. (with Zeng, Yanni) Shock waves in conservation laws with physical viscosity, *Mem. Amer. Math. Soc.* 234 (2015), no. 1105, vi+168 pp.
24. (with Yu, Shih-Hsien) Multi-dimensional wave propagation over a Burgers shock profile *Arch. Ration. Mech. Anal.* 229 (2018), no. 1, 231-337.
25. Shock waves. Graduate Studies in Mathematics, 215. *American Mathematical Society, Providence, RI*, [2021], ©2021. xvii+437 pp. ISBN: 978-1-4704-6567-4
26. (with Yu, Shih-Hsien) Navier-Stokes equations in gas dynamics: Green's function, singularity, and well-posedness *Comm. Pure Appl. Math.* 75 (2022), no. 2, 223-348.

AWARDS

Levi Civita Prize 2023.

Fellow, SIAM, 2013.

Fellow, American Mathematical Society, 2012.

Galileo Galilei Medal , City of Padova. 2012.

Cataldo e Angiola Agostinelli International Prize, 2009.

TWAS membership, 2006.

Sloan Fellowship 1979-81

Guggenheim Fellowship 1982-83

Member, Academia Sinica, Nankang, Rep. of China, 1992.

Honorary professor, Chinese Academy of Sciences, Beijing

Honorary professor, City University of Hong Kong

Journal Editorship:

Archive for Rational Mechanics and Analysis

Mathematical Models and Methods in Applied Sciences

Journal of Dynamics and Differential Equations

Chinese Journal of Partial Differential Equations

Discrete and Continuous Dynamical Systems

Taiwanese Journal of Mathematics

Bulletin, Institute of Mathematics, Academia Sinica

Acta Mathematicae Applicae (editor in chief)

Acta Mathematica Scientia

Zeitschrift für Analysis und ihre Anwendungen