

My research interests include low-dimensional dynamical systems; conformal natural extensions of homeomorphisms and arbitrary continuous maps of circle and sphere of any dimension; quantitative studies in Thurston's earthquake theory; applications of conformal natural extensions and earthquakes in Teichmüller spaces and asymptotic Teichmüller spaces; Teichmüller metric, Kobayashi metric, and length spectrum metric on Teichmüller spaces and asymptotic Teichmüller spaces; and real Teichmüller theory motivated by rigidity problems in smooth or conformal dynamical systems.

PUBLICATIONS

- (1) Topological characterization of an asymptotic Teichmüller space through measured geodesic laminations. 33 pages, submitted, 2013 (co-authored with Jinhua Fan).
- (2) A gluing theorem and applications in subspaces of the universal Teichmüller space. 11 pages, submitted, 2014 (co-authored with Jinhua Fan).
- (3) Comparison between the Teichmüller distance and the length spectrum distance under partial twists. 16 pages, submitted, 2014 (co-authored with Francisco G. Jiménez-López).
- (4) Conformally natural extensions of continuous circle maps: II. The general case. 25 pages, submitted, 2014 (co-authored with Oleg Muzician).
- (5) Characterization of the asymptotic Teichmüller space of the open unit disk through shears. 25 pages, To appear in *Pure and Applied Mathematics Quarterly*, 2014 (co-authored with Jinhua Fan).
- (6) Modified length spectrum metric on marked Teichmüller spaces of Riemann surfaces with boundaries. 15 pages, to appear in *Ann. Acad. Sci. Fenn.*, 2014 (co-authored with Francisco G. Jiménez-López).
- (7) Boundary differentiability of Douady-Earle extensions of diffeomorphisms of S^n . 12 pages, to appear in *Pure and Applied Mathematics Quarterly*, 2013 (co-authored with Susovan Pal).
- (8) Extending the Dehn quandle to shears and laminations on torus. 20 pages, to appear in *Fundamenta Mathematicae*, 2013 (co-authored with Reza Chamanara and Joel Zablów).
- (9) Rational maps with half symmetries, Julia sets, and Multibrot sets in parameter planes. *Contemp. Math.*, **573**, 119-146, 2012 (co-authored with Francisco G. Jimenez and Oleg Muzician).
- (10) Conformally natural extensions of continuous circle maps: I. The case when the push-forward measure has no atom. *Contemp. Math.*, **575**, 171-198, 2012 (co-authored with Oleg Muzician).
- (11) Cross-ratio distortion and Douady-Earle extension: II. Quasiconformality and asymptotic conformality are local. *Jour. d'Analyse Math.*, Vol. 117, No. 1, 249-271, 2012 (co-authored with Oleg Muzician).
- (12) Cross-ratio distortion and Douady-Earle extension: I. A new upper bound on quasiconformality. *Jour. of London Math. Soc.*, Vol. 86, Part 2, 387-406, 2012 (co-authored with Oleg Muzician).
- (13) Earthquakes on the hyperbolic plane. *Handbook of Teichmüller theory, volume III* (ed Athanase Papadopoulos), IRMA Lectures in Mathematics and Theoretical Physics Vol. 17 (European Mathematical Society, 2012) 71-122.
- (14) Remarks on Chirka's proof of Slodkowski's theorem. *Advances in Mathematics (China)*, Vol. 40, No. 3, 325-338, 2011 (co-authored with Zhe Wang).
- (15) Kobayashi's and Teichmüller's metrics on the Teichmüller space of symmetric circle homeomorphisms. *Acta Mathematica Sinica, English Series*, Vol. 27, No. 3, 617-624, 2011 (co-authored with Yunping Jiang and Zhe Wang).
- (16) Finite earthquakes and the associahedron. *Teichmüller Theory and Moduli Problems*. Ramanujan Mathematical Society Lecture Notes Series, Vol. 10, 179-194, 2010 (co-authored with Frederick P. Gardiner).
- (17) A short course on Teichmüller's theorem. *Teichmüller Theory and Moduli Problems*. Ramanujan Mathematical Society Lecture Notes Series, Vol. 10, 195-228, 2010 (co-authored with Frederick P. Gardiner).

- (18) From left earthquakes to right. *Contemporary Mathematics*, **432**, 75-92, 2007.
- (19) Thurston unbounded earthquake maps. *Ann. Acad. Sci. Fenn.*, **32**, 125-139, 2007 (co-authored with Meiyu Su).
- (20) An earthquake version of the Jackson-Zygmund theorem. *Ann. Acad. Sci. Fenn.*, **Vol. 30**, 237-260, 2005 (co-authored with Frederick P. Gardiner).
- (21) Norms on earthquake measures and Zygmund functions. *Proc. of AMS*, **133**, 193-202, 2005.
- (22) Earthquake measure and cross-ratio distortion. *Contemporary Mathematics*, **Vol. 355**, 285-308, 2004.
- (23) Continuous extensions are not Hölder. *Inter. Journal of Bifurcation and Chaos*, **Vol. 14**, No. 4, 1501-1505, 2004.
- (24) On a norm of tangent vectors to earthquake curves. *Advances in Mathematics, Sinica*, **Vol. 33**, No. 4, 401-414, 2004.
- (25) Feigenbaum quadratic map: External rays and non-Hölder continuity. *Complex Dynamics and Related topics*, New Studies in Advanced Mathematics, **Vol. 5**, edited by Y. Jiang and Y. Wang, pp. 218-235. International Press, Somerville, MA, 2004.
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- (27) Earthquake curves. *Contemporary Mathematics*, **Vol. 311**, 141-195, 2002 (co-authored with Frederick P. Gardiner and Niklai Lakic).
- (28) The Julia set of the Feigenbaum quadratic polynomial. *Dynamical Systems*, Proceedings of the International Conference on Dynamical Systems in Honor of Professor Shantao Liao (Beijing, August 1998; Editors: Yunping Jiang and Wen Lan), 99-124, World Scientific, 1999 (co-authored with Yunping Jiang).
- (29) Period doubling, entropy, and renormalization, *Fundamenta Mathematicae*. **155**, No. 3, 237-249, 1998 (co-authored with Charles Tresser).
- (30) Bounded geometry in the supports of ergodic invariant probability measures. *The Inter. Journal of Bifurcation and Chaos*, **Vol. 8**, No. 10, 1957-1973, 1998.
- (31) Feigenbaum's rigidities and dynamical systems between simple and chaotic. *Advances in Mathematics, Sinica*, **Vol. 27**, No. 5, 385-402, 1998.
- (32) Topological conjugacy of circle diffeomorphisms. *Ergod. Th. & Dynam. Sys.*, **17**, 173-186, 1997 (co-authored with Dennis P Sullivan).
- (33) Commuting polynomials and polynomials with same Julia sets. *The Inter. Journal of Bifurcation and Chaos*, **Vol. 6**, No. 12A, 2427-2432, 1996 (co-authored with Pau Atela).
- (34) Renormalization, rigidity, and universality in bifurcation theory. Ph.D. thesis, Graduate Center of CUNY, 1995.

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- Local connectivity of Julia sets of real multi-modal polynomials. Preprint, Dept. of Math., Brooklyn College of CUNY, 2000 (co-authored with Eduardo A. Prado and Edson Vargas).
- The Julia set of the Couillet-Feigenbaum-Tresser quadratic polynomial is locally connected. Preprint, Dept. of Math., Graduate Center of CUNY, May 1993 (A joint work with Yunping Jiang).

LECTURE NOTES

- Lecture Notes on Complex Analysis I, Preprint, in the Ph.D. Program in Mathematics at Graduate Center of CUNY, March 2006.
- Lecture Notes of Dynamical Systems: an introduction to the flows of autonomous systems, Preprint, in the Ph.D. Program in Mathematics at Rutgers-Newark, 1998.