Masashi Mizuno

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Personal

Date on Birth: 27 April 1982.

Nationality: Japan.

Gender: Male.

Education

Ph.D(Mathematics). Tohoku University, September 2010.

M.S(Mathematics). Tohoku University, March 2007.

B.S(Mathematics). Saitama University, March 2005.

Employment

Associate professor at Department of Mathematics, College of Science and Technology, Nihon University, April 2015 – present.

Assistant professor at Department of Mathematics, College of Science and Technology, Nihon University, April 2012 – March 2015.

Post-doctoral researcher at Department of Mathematics, Graduates School of Science, Hokkaido University, April 2011 – March 2012.

Research Fellow of the Japan Society for the Promotion of Science, April 2009 – March 2011.

Research assistant of the global COE at Tohoku University, August 2008 – March 2009.

Research assistant of the Daigakuin GP at Tohoku University, January 2008 – May 2008.

Research assistant of the COE at Tohoku University, April 2007 – March 2008.

Research

Research interest: Nonlinear analysis, Regularity theory for nonlinear partial differential equations, geometric measure theory and its application, Mathematical modeling for grain boundary motion.

Journal articles with peer review

Xianjin Chen, Chiun-Chang Lee, Masashi Mizuno, *Unified asymptotic analysis and numerical simulations of singularly perturbed linear differential equations under various nonlocal boundary effects*, Communications in Mathematical Sciences. **22** (2024), 394–434

Yekaterina Epshteyn, Chang Liu, Chun Liu, Masashi Mizuno, *Local well-posedness of a nonlinear Fokker-Planck model*, Nonlinearity, **36** (2023), 1890–1917.

Takashi Kagaya, Masashi Mizuno, Keisuke Takasao, *Long time behavior for a curvature flow of networks related to grain bundary motion with the effect of lattice misoriantations*, accepted to The Annali della Scuola Normale Superiore di Pisa, Classe di Scienze.

Yekaterina Epshteyn, Chang Liu, Chun Liu, Masashi Mizuno, *Nonlinear inhomogeneous Fokker-Planck models: energetic-variational structures and long time behavior*, Anal. Appl. (Singap.) **20** (2022), 1295–1356.

Yekaterina Epshteyn, Chun Liu, Masashi Mizuno, *A stochastic model of grain boundary dynamics: A Fokker-Planck perspective*. Math. Models Methods Appl. Sci. **32** (2022), 2189–2236.

Chang Lee, Masashi Mizuno, Sang-Hyuck Moon, *On the uniqueness of linear convection-diffusion equations in large domains with integral boundary conditions*. Comptes Rendus. Mathé matique, **361** (2023), 191–206.

Katayun Barmak, Anastasia Dunca, Yekaterina Epshteyn, Chun Liu, Masashi Mizuno, *Grain Growth and the Effect of Different Time Scales*, in "Research in Mathematics of Materials Science," 33–58, Springer, Cham, 2022.

Masashi Mizuno, Keisuke Takasao, *A curve shortening equation with time-dependent mobility related to grain boundary motions*, Interfaces Free Bound. **23** (2021), 169–190.

Yekaterina Epshteyn, Chun Liu, Masashi Mizuno, *Large time asymptotic behavior of grain boundaries motion with dynamic lattice misorientations and with triple junctions drag*, Commun. Math. Sci. **19** (2021), 1403–1428.

Yekaterina Epshteyn, Chun Liu, Masashi Mizuno, *Motion of grain boundaries with dynamic lattice misorientations and with triple junctions drag*, SIAM J. Math. Anal. **53** (2021), 3072–3097.

Masashi Mizuno and Keisuke Takasao, *Gradient estimates for mean curvature flow with Neumann boundary conditions*, NoDEA. Nonlinear Differential Equations and Applications **24** (2017), Art. 32, 24pp.

Masashi Mizuno and Yoshihiro Tonegawa, *Erratum to "Convergence of the Allen-Cahn equation with Neumann boundary conditions"*, SIAM Journal on Mathematical Analysis **48** (2016), 3035–3036.

Masashi Mizuno and Yoshihiro Tonegawa, *Convergence of the Allen-Cahn equation with Neumann boundary conditions*, SIAM Journal on Mathematical Analysis **47** (2015), 1906–1932.

Masashi Mizuno and Takayoshi Ogawa, *Regularity and asymptotic behavior for the Keller-Segel system of degenerate type with critical nonlinearity*, Journal of Mathematical Sciences, The University of Tokyo **20** (2013), 375–433.

Masashi Mizuno, *Hölder estimates for solutions of the Cauchy problem for the porous medium equation with external forces*, Manuscripta Mathematica **141** (2013), 273–313.

Masashi Mizuno, *Remarks on Hölder continuity for solutions of the p-Laplace evolution equations*, Journal of Mathematical Analysis and Applications **382** (2011), 785–791.

Masashi Mizuno, *Harnack estimates for some nonlinear parabolic equation*, Differential and Integral Equations **21** (2008), 693–716.

Preprints

Yekaterina Epshteyn, Chun Liu, and Masashi Mizuno, *Longtime Asymptotic Behavior of Nonlinear Fokker-Planck Type Equations with Periodic Boundary Conditions*.

Proceedings without peer review

Masashi Mizuno, *Mathematical modeling for grain boundary motion with dynamic lattice misorientations and triple junction drag*(Japanese), in Proceedings of 46th Sapporo Symposium on Partial Differential Equations, **181** (2021), 39–50.

Masashi Mizuno and Keisuke Takasao, *Gradient estimates for mean curvature flow with Neumann boundary conditions*, in RIMS Kôkyûroku, Theory of evolution equations and applications to nonlinear problems, **2066** (2018), 35–45.

Masashi Mizuno and Yoshihiro Tonegawa, *Convergence of the Allen-Cahn equation with Neumann boundary conditions*, in RIMS Kôkyûroku, Regularity and Singularity for Partial Differential Equations with Conservation Laws **1962** (2015), 10–16.

Masashi Mizuno and Takayoshi Ogawa, *Hölder continuity for some degenerate parabolic equation and its application*, in RIMS Kôkyûroku, Nonlinear evolution equations and mathematical modeling **1693** (2010), 45–56.

Grants(Principal Investigator)

Grant-in-Aid for Scientific Research (C), JSPS KAKENHI Grant Number 22K03376, 4,030,000 JPY, April 2022 – March 2027.

Grant-in-Aid for Encouragement of Young Scientists, JSPS KAKENHI Grant Number 18K13446, 3,510,000 JPY, April 2018 – March 2022.

Grant-in-Aid for Encouragement of Young Scientists (B), JSPS KAKENHI Grant Number 25800084, 3,250,000 JPY, April 2014 – March 2016.

Grant-in-Aid for JSPS Fellows, JSPS KAKENHI Grant Number 09J01281, 1,400,000 JPY, April 2009 – March 2011.

Visitor

Yekaterina Epshteyn, The University of Utah, 4–15 October 2019.

Chiun-Chang Lee, National Tsing Hua University, 17–31 January 2019.

Professional and society memberships

Member of Society for Industrial and Applied Mathematics, October 2019 – present.

Member of The Japan Society for Industrial and Applied Mathematics, April 2018 – present.

Member of Mathematical Society of Japan, October 2007 – present.

Professional activities

Organizing Seminars

Organizer of Research Analysis seminar, 1 February 2017 – present.

Organizer of Saitama Mathematical Analysis seminar, 1 April 2012 – present.

Organizer of Sandaigaku PDE seminar, 1 April 2012 – 31 January 2017.

Organizer of PDE seminar at Hokkaido University, 1 April 2011 – 31 March 2012.

Organizing Workshops

Organizer of "Critical Phenomena in Nonlinear Partial Differential Equations, Harmonic Analysis, and Functional Inequalities", 7 Nov 2023 – 10 Nov 2023.

Organizer of Mini-symposium "Mathematical Aspects of Multiscale Phenomena in Materials and Complex Fluids" in 10th International Congress on Industrial and Applied Mathematics, 23 August 2023.

Organizer of "Surugadai PDE workshop", 10 December 2022.

Organizer of "Tsukuba PDE workshop", 12 October 2019 – 14 October 2019.

Co-organizer of "The 41st Young's seminar for Evolution Equations", 26 August 2019 – 29 August 2019.

Organizer of "Spring School 2008, Mathematical Analysis of nonlinear problem", 14 February 2008 – 17 March 2008.

Committee

Vice editor-in-chief of "Bulletin of the Japan Society for Industrial and Applied Mathematics," April 2023 – present.

Editorial board member of "Bulletin of the Japan Society for Industrial and Applied Mathematics," April 2020 – March 2023.

A district representative of "Mathematical Society of Japan," March 2023 – February 2024.

A representative of "The Japan Society for Industrial and Applied Mathematics," April 2023 – March 2025.

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