Dr. Nicola Zamponi's Publications and Preprints

Preprints and submitted papers

1. M. Gualdani, M. Ispizua, N. Zamponi. A quasilinear Keller-Segel model with saturated discontinuous advection. Submitted for publication (2024), arXiv: 2403.06820.

2. E. S. Daus, J.-P. Milišić, N. Zamponi. Nonisothermal Richards flow in porous media with cross diffusion. Submitted for publication (2024), arXiv: 2102.00455.

3. N. De Nitti, N. Zamponi. Fractional cross-diffusion in a bounded domain: existence, weak-strong uniqueness, and long-time asymptotics. Submitted for publication (2024), arXiv: 2407.19824.

Published papers

34. L. Chen, S. Göttlich, N. Zamponi. Connection between a degenerate particle flow model and a free boundary problem. Accepted for publication in *Commun. Math. Sci.*, arXiv: 2202.04416.

33. J. Hu, A. Jüngel, N. Zamponi. Global weak solutions for a nonlocal multispecies Fokker-Planck-Landau system. Published online in *Kinetic and Related Models* (https://doi.org/10.3934/krm.2024007).

32. C. Jourdana, A. Jüngel, N. Zamponi. Three-species drift-diffusion models for memristors. *Mathematical Models and Methods in Applied Sciences* 33.10 (2023): 2113-2156.

31. L. Chen, Y. Li, N. Zamponi. Global weak solutions to the compressible Cucker-Smale-Navier-Stokes system in a bounded domain. *Nonlinear Analysis* 232 (2023): 113257.

30. L. Chen, A. Holzinger, A. Jüngel, N. Zamponi. Analysis and mean-field derivation of a porous-medium equation with fractional diffusion. *Commun. Partial. Differ. Equ.* 47.11 (2022): 2217-2269.

29. L. Chen, F. Li, Y. Li, N. Zamponi. Global weak solutions to the Vlasov-Poisson-Fokker-Planck-Navier-Stokes system. *Math. Methods Appl. Sci.* 46.2 (2023): 2729-2745.

28. M. Braukhoff, C. Raithel, N. Zamponi. Partial Hölder regularity for solutions of a class of cross-diffusion systems with entropy structure. *Journal de Mathématiques Pures et Appliquées* 166 (2022), 30-69.

27. M. Buliček, A. Jüngel, M. Pokorný, N. Zamponi. Existence analysis of a stationary compressible fluid model for heat-conducting and chemically reacting mixtures. *Journal of Mathematical Physics* 63 (2022): 051501.

26. W. Golding, M. Gualdani, N. Zamponi. Existence of smooth solutions to the Landau-Fermi-Dirac equation with Coulomb potential. *Commun. Math. Sci.* 20.8 (2022): 2315-2365.

25. A. Jüngel, N. Zamponi. Analysis of a fractional cross-diffusion system for multi-species populations. *Journal of Differential Equations* 322 (2022): 237-267.

24. E. S. Daus, M. P. Gualdani, J. Xu, N. Zamponi, X. Zhang. Non-Local Porous Media Equations with Fractional Time Derivative. *Nonlinear Analysis* 211 (2021): 112486.

23. A. B. T. Barbaro, N. Rodriguez, H. Yoldaş, N. Zamponi. Analysis of a cross-diffusion model for rival gangs interaction in a city. *Commun. Math. Sci.* 19.8 (2021): 2139-2175.

22. G. Favre, A. Jüngel, C. Schmeiser, N. Zamponi. Existence analysis of a degenerate diffusion system for heat-conducting fluids. *Nonlinear Differential Equations and Applications NoDEA* 28.4 (2021): 1-28.

21. L. Caffarelli, M. Gualdani, N. Zamponi. Existence of weak solutions to a continuity equation with space time nonlocal Darcy law. *Commun. Partial. Differ. Equ.* 45.12 (2020): 1799-1819.

20. E. S. Daus, M. Gualdani, N. Zamponi. Longtime behavior and weak-strong uniqueness for a nonlocal porous media equation. *J. Diff. Eq.* 268.4 (2020), 1820-1839.

19. E. S. Daus, J. Milišić, N. Zamponi. Analysis of a degenerate and singular volume-filling cross-diffusion system modeling biofilm growth. *SIAM J. Math. Anal.* 51.4 (2020), 3569-3605.

18. E. S. Daus, J. Milišić, N. Zamponi. Global existence for a two-phase flow model with cross diffusion. *DCDS-B* 25.3 (2020), 957-979.

17. G. Dhariwal, A. Jüngel, N. Zamponi. Global martingale solutions for a stochastic population cross-diffusion system. *Stochastic Process. Appl.* 129.10 (2019), 3792-3820.

16. M. Gualdani, N. Zamponi (2018). A review for an isotropic Landau model. *PDE Models for Multi-Agent Phenomena*, Springer INdAM Series 28 (2018), 115-144.

15. M. Gualdani, N. Zamponi. Global existence of weak even solutions for an isotropic Landau equation with Coulomb potential. *SIAM J. Math. Anal.* 50.4 (2018), 3676-3714.

14. A. Jüngel, J. Mikyška, N. Zamponi. Existence analysis of a single-phase flow mixture model with van der Waals pressure. *SIAM J. Math. Anal.* 50.1 (2018), 1367-1395.

13. M. Gualdani, N. Zamponi. Spectral gap and exponential convergence to equilibrium for a multi-species Landau system. *Bull. Sci. Math.* 141.6 (2017), 509-538.

12. M. Bulíček, M. Pokorný, N. Zamponi. Existence analysis for incompressible fluid model of electrically charged chemically reacting and heat conducting mixtures. *SIAM J. Math. Anal.* 49.5 (2017), 3776-3830.

11. A. Jüngel, P. Shpartko, N. Zamponi. Energy-transport models for spin transport in ferromagnetic semiconductors. *Commun. Math. Sci.* 15 (2017), 1527-1563.

10. A. Jüngel, N. Zamponi. A cross-diffusion system derived from a Fokker-Planck equation with partial averaging. *Z. Appl. Math. Phys.* 68.1 (2017): 28.

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8. A. Jüngel, N. Zamponi. Qualitative behavior of solutions to cross-diffusion systems from population dynamics. *J. Math. Anal. Appl.* 440 (2016), 794-809.

7. N. Zamponi, A. Jüngel. Analysis of a coupled spin drift-diffusion Maxwell-Landau-Lifshitz system. *J. Diff. Eqs.* 260 (2016), 6828-6854.

6. E. S. Daus, A. Jüngel, C. Mouhot, N. Zamponi. Hypocoercivity for a linearized multispecies Boltzmann system. *SIAM J. Math. Anal.* 48 (2016), 538-568.

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4. N. Zamponi, A. Jüngel. Global existence analysis for degenerate energy-transport models for semiconductors. *Journal of Diff. Eq.* (2015), 258 2339–2363.

3. N. Zamponi, A. Jüngel. Two spinorial drift-diffusion models for quantum electron transport in graphene. *Communication in Mathematical Sciences* (2013), 11 (3) 807–830.

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1. N. Zamponi, L. Barletti. Quantum electronic transport in graphene: a kinetic and fluid-dynamic approach. *Math. Methods Appl. Sci.* (2011), 34 807–818.

Ph. D. Thesis

N. Zamponi. Quantum fluid models for electron transport in graphene. Ph. D. Thesis in Mathematics at Florence University, Florence, Italy (2013).