

## Complete List of Publications – Helena J. Nussenzeve Lopes

1. with David Ambrose and Milton C. Lopes Filho, Existence and analyticity of the Lei-Lin solution of the Navier-Stokes equations on the torus. Accepted, *Proc. Amer. Math. Soc.*, <https://arxiv.org/abs/2205.12383> 2022.
2. with Milton C. Lopes Filho, Energy balance for forced two-dimensional incompressible ideal fluid flow. *Phil. Trans. R. Soc. A*, <https://doi.org/10.1098/rsta.2021.0095> (2022).
3. with Christian Seis and Emil Wiedemann, On the vanishing viscosity limit for 2D incompressible flows with unbounded vorticity. *Nonlinearity*, 34 (2021), 3112–3121.
4. with A. Valentina Busuioc, Dragos Iftimie and Milton C. Lopes Filho, The limit  $\alpha \rightarrow 0$  of the  $\alpha$ -Euler equations in the half-plane with no-slip boundary conditions and vortex sheet initial data. *SIAM J Math Analysis*. 52 (2020), 5257–5286.
5. with Dragos Iftimie and Milton C. Lopes Filho, Weak vorticity formulation of the incompressible 2D Euler equations in bounded domains. *Comm Partial Diff Equations*, 45 (2020), 109–145.
6. with Peter Constantin, Milton C. Lopes Filho and Vlad Vicol, Vorticity measures and vanishing viscosity. *Archive Rat Mech Anal*. 234 (2019), 575–593.
7. with Gung-Min Gie, J.P. Kelliher, M.C. Lopes Filho and A.L. Mazzucato, The vanishing viscosity limit for some symmetric flows. *Ann. Instit. Henri Poincaré C, Analyse non linéaire*. 36 (2019), 1237–1280.
8. with David Ambrose and Milton C. Lopes Filho, Confinement of vorticity for the 2D Euler-alpha equations. *Journal of Differential Equations*, 265 (2018), 5472–5489.
9. with Christophe Lacave and Milton C. Lopes Filho, Asymptotic behavior of incompressible ideal flow around small disks. *Asymptotic Analysis*, v. 108, no. 1-2, (2018) 45–83.
10. with Quansen Jiu, Dongjuan Niu and Milton C. Lopes Filho, The limit of vanishing viscosity for the incompressible 3D Navier-Stokes equations with helical symmetry. *Physica D: Nonlinear Phenomena*, 376, (2018) 238–246. Special Issue in Honor of Edriss S. Titi's 60th Birthday.
11. with Alexey Cheskidov, Milton C. Lopes Filho and Roman Shvydkoy, Energy conservation in two-dimensional incompressible ideal fluids. *Communications in Mathematical Physics*, 348(1), (2016) 129–143.
12. with A. Valentina Busuioc, Dragos Iftimie and Milton C. Lopes Filho. Uniform time of existence for the alpha Euler equations. *Journal of Functional Analysis*, 271 (2016), 1341–1375.
13. with D. A. F. Albanez and E. S. Titi. Continuous data assimilation for the three-dimensional Navier-Stokes- $\alpha$  model. *Asymptotic Analysis*, 97 (2016), 139–164.
14. with Gianluca Crippa, Milton C. Lopes Filho and Evelyne Miot. Flows of vector fields with point singularities and the vortex-wave system. *Discrete and Continuous Dynamical Systems*. v.36, (2016) 2405–2417.
15. with David Ambrose, James P. Kelliher and Milton C. Lopes Filho, Serfati solutions to the 2D Euler equations on exterior domains, *J. Diff. Equations*, 259 (2015), 4509–4560.
16. with M.C. Lopes Filho, E. S. Titi and Aibin ZANG. Approximation of 2D Euler Equations by the Second-Grade Fluid Equations with Dirichlet Boundary Conditions. *Journal of Mathematical Fluid Mechanics* (Printed Ed.). , v.17, (2015) 327–340.
17. with Anne C. Bronzi and Milton C. Lopes Filho, Global existence of a weak solution of the incompressible Euler equations with helical symmetry and  $L^p$  vorticity. *Indiana University Mathematics Journal* 64 (2015), 309–341.
18. with Anne C. Bronzi and Milton C. Lopes Filho, Wild solutions for 2D incompressible ideal flow with passive tracer. *Commun. in Math. Sci.* 13 (2015), 1333–1343.

19. with Milton C. Lopes Filho, Edriss S. Titi and Aibin Zang, Convergence of the 2D Euler- $\alpha$  to Euler equations in the Dirichlet case: indifference to boundary layers. *Phys. D* 292(293) (2015), 51–61.
20. with Milton C. Lopes Filho, Anna L. Mazzucato, Dongjuan Niu and Edriss S. Titi, Planar Limits of Three-Dimensional Incompressible Flows with Helical Symmetry. *Journal of Dynamics and Differential Equations*. 26 (2014), 843–869.
21. with Geoffrey R. Burton and Milton C. Lopes Filho, Nonlinear stability for steady vortex pairs. *Communications Math. Phys.* 324 (2013), 445–463.
22. with Milton C. Lopes Filho and Huy Hoang Nguyen, Incompressible and ideal 2D flow around a small obstacle with constant velocity at infinity. *Quarterly of Applied Mathematics*. 71 (2013) 679–687.
23. with Claude Bardos, Milton Lopes Filho, Dongjuan Niu and Edriss S. Titi, Stability of two-dimensional viscous incompressible flows under three-dimensional perturbations and inviscid symmetry breaking. *SIAM J. Math. Anal.* 45 (2013), no. 3, 1871–1885.
24. with A. Valentina Busuioac, Dragos Iftimie and Milton C. Lopes Filho, Incompressible Euler as a limit of complex fluid models with Navier boundary conditions. *J. Differential Equations* 252 (2012), no. 1, 624–640.
25. with Milton C. Lopes Filho and Evelyne Miot, Existence of a weak solution in  $L^p$  to the vortex-wave system. *J. Nonlinear Sci.* 21 (2011), no. 5, 685–703.
26. with Milton C. Lopes Filho and Juliana C. Precioso, Least action principle and the incompressible Euler equations with variable density. *Trans. Amer. Math. Soc.* 363 (2011), no. 5, 2641–2661.
27. with David M. Ambrose, Milton C. Lopes Filho and Walter A. Strauss, Transport of interfaces with surface tension by 2D viscous flows. *Interfaces Free Bound.* 12 (2010), no. 1, 23–44.
28. with Milton C. Lopes Filho Vortex dynamics on a domain with holes In: IUTAM symposium, Copenhagen. *Theoretical and Computational Fluid Dynamics. Berlin: Springer Verlag*, 24 (2010) 51–57.
29. with James P. Kelliher and Milton C. Lopes Filho, Vanishing viscosity limit for an expanding domain in space. *Ann. Inst. H. Poincaré Anal. Non Linéaire* 26 (2009), no. 6, 2521–2537.
30. with Josiane C. O. Faria and Milton C. Lopes Filho, Weak stability of Lagrangian solutions to the semigeostrophic equations. *Nonlinearity* 22 (2009), no. 10, 2521–2539.
31. with Dragos Iftimie and Milton C. Lopes Filho Incompressible flow around a small obstacle and the vanishing viscosity limit. *Comm. Math. Phys.* 287 (2009), no. 1, 99–115.
32. with Milton C. Lopes Filho, Anna L. Mazzucato, and Michael Taylor, Vanishing viscosity limits and boundary layers for circularly symmetric 2D flows. *Bull. Braz. Math. Soc. (N.S.)* 39 (2008), no. 4, 471–513.
33. with Anne C. Bronzi and Milton C. Lopes Filho, Computational visualization of Shnirelman’s compactly supported weak solution. In: Euler equations: 250 years on, 2007, Aussois. *Physica D, special issue, Euler equations: 250 years on*. New York: Elsevier, (2008).
34. with Milton C. Lopes Filho and Anna L. Mazzucato, Vanishing viscosity limit for incompressible flow inside a rotating circle. *Phys. D* 237 (2008), no. 10-12, 1324–1333.
35. with Dragos Iftimie and Milton C. Lopes Filho, Confinement of vorticity in two dimensional ideal incompressible exterior flow. *Quarterly of Applied Mathematics*. 65, (2007) 499–521.
36. with Milton C. Lopes Filho and Steven Schochet, A criterion for the equivalence of the Birkhoff-Rott and Euler descriptions of vortex sheet evolution. *Trans. Amer. Math. Soc.* 359 (2007), no. 9, 4125–4142 (electronic).
37. with Milton C. Lopes Filho and Zhouping Xin, Vortex sheets with reflection symmetry in exterior domains. *J. Differential Equations* 229 (2006), no. 1, 154–171.

38. with Dragos Iftimie and Milton C. Lopes Filho, Two-dimensional incompressible viscous flow around a small obstacle. *Math. Ann.* 336 (2006), no. 2, 449–489.
39. with Milton C. Lopes Filho, John Lowengrub and Yuxi Zheng, Numerical evidence of nonuniqueness in the evolution of vortex sheets. *M2AN Math. Model. Numer. Anal.* 40 (2006), no. 2, 225–237.
40. with Milton C. Lopes Filho and Anna L. Mazzucato, Weak solutions, renormalized solutions and enstrophy defects in 2D turbulence. *Arch. Ration. Mech. Anal.* 179 (2006), no. 3, 353–387.
41. with Milton C. Lopes Filho and Gabriela Planas, On the inviscid limit for two-dimensional incompressible flow with Navier friction condition. *SIAM J. Math. Anal.* 36 (2005), no. 4, 1130–1141 (electronic).
42. with Dragos Iftimie and Milton C. Lopes Filho, Large time behavior for vortex evolution in the half-plane. *Comm. Math. Phys.* 237 (2003), no. 3, 441–469.
43. with Dragos Iftimie and Milton C. Lopes Filho, On the large-time behavior of two-dimensional vortex dynamics. *Phys. D* 179 (2003), no. 3-4, 153–160.
44. with Milton C. Lopes Filho and Max O. Souza, On the equation satisfied by a steady Prandtl-Munk vortex sheet. *Commun. Math. Sci.* 1 (2003), no. 1, 68–73.
45. with Dragos Iftimie and Milton C. Lopes Filho, Two dimensional incompressible ideal flow around a small obstacle. *Comm. Partial Differential Equations* 28 (2003), no. 1-2, 349–379.
46. with Milton C. Lopes Filho, Existence of weak solutions to the semigeostrophic equation with integrable initial data. *Proceedings of the Royal Society of Edinburgh. Section A, Mathematics.* 132 (2002) 329–339.
47. with Dragos Iftimie and Milton C. Lopes Filho, Comportement en temps grand pour les écoulements parfaits incompressibles dans un demi-plan. In: *Seminaire Equations aux Derivees Partielles, Ec. Polytechnique, 2002, Palaiseu.* v. 2001-2. p. 1–8.
48. with Milton C. Lopes Filho, Pointwise blow-up of sequences bounded in  $L^1$ . *Journal of Mathematical Analysis and Applications.* 263 (2001) 447–454.
49. with Milton C. Lopes Filho and Zhouping Xin, Existence of vortex sheets with reflection symmetry in two space dimensions. *Arch. Ration. Mech. Anal.* 158 (2001), no. 3, 235–257.
50. with Milton C. Lopes Filho and Eitan Tadmor, Approximate solutions of the incompressible Euler equations with no concentrations. *Ann. Inst. H. Poincaré Anal. Non Linéaire* 17 (2000), no. 3, 371–412.
51. with Jorge Hounie and Milton C. Lopes Filho, Bounds on the dispersion of vorticity in 2D incompressible, inviscid flows with a priori unbounded velocity. *SIAM J. Math. Anal.* 31 (1999), no. 1, 134–153.
52. with Milton C. Lopes Filho and Yuxi Zheng, Weak solutions for the equations of incompressible and inviscid fluid dynamics. 22o Colóquio Brasileiro de Matemática. [22nd Brazilian Mathematics Colloquium] *Instituto de Matemática Pura e Aplicada (IMPA), Rio de Janeiro, 1999.*
53. with Milton C. Lopes Filho, Propagation Of Support And Singularity Formation For A Class Of 2D Quasilinear Hyperbolic Systems. *Quarterly of Applied Mathematics.* 57 (1999) 229–243.
54. with Milton C. Lopes Filho and Yuxi Zheng, Convergence of the vanishing viscosity approximation for superpositions of confined eddies. *Comm. Math. Phys.* 201 (1999), no. 2, 291–304.
55. with Milton C. Lopes Filho, Jorge Hounie and Steven Schochet, A Priori Temporal Regularity For The Stream Function Of 2d Incompressible, Inviscid Flow. *Nonlinear Analysis. Theory, Methods and Applications.* 35 (1999) 871–884.

56. with Milton C. Lopes Filho, An extension of Marchioro's bound on the growth of a vortex patch to flows with  $L^p$  vorticity. *SIAM J. Math. Anal.* 29 (1998), no. 3, 596–599 (electronic).
57. with Jorge Hounie, Milton C. Lopes Filho and Steven Schochet, A Priori Estimates For The Stream Function Of 2D Incompressible, Inviscid Fluid. In: II World Congress of Nonlinear Analysts, 1997, Atenas. *Nonlinear Analysis: Theory, Methods and Applications. Elsevier Science*, 30 (1997) 5053–5058.
58. with David R. Adams, Nonlinear Weakly Elliptic 2x2 Systems Of Variational Inequalities With Unilateral Obstacle Constraints. *Electronic Journal of Differential Equations*. 1997 (1997) 1–20. 1997.
59. A refined estimate of the size of concentration sets for 2D incompressible inviscid flow. *Indiana Univ. Math. J.* 46 (1997), no. 1, 165–182.
60. with Milton C. Lopes Filho, Concentration Sets For 2d Incompressible Flow. In: III International Congress of Industrial and Applied Mathematics, 1996, Hamburg. *ZAMM. Hamburg, Alemanha*, 1996. v. 76. p. 101–104.
61. with Milton C. Lopes Filho, Smooth Solutions Of Partially Aligned Systems. In: III International Congress of Industrial and Applied Mathematics, 1996, Hamburg. *ZAMM*, 1996. v. 76. p. 141–144.
62. with Milton C. Lopes Filho, Singularity Formation For A System Of Conservation Laws In Two Space Dimensions. *Journal of Mathematical Analysis and Applications*. 200 (1996) 538–547.
63. with David R. Adams, Weakly elliptic systems of variational inequalities: a 2 x 2 model problem with obstacles in both components. *Ann. Mat. Pura Appl. (4)* 169 (1995), 183–201.
64. with Milton C. Lopes Filho, Multidimensional Hyperbolic Systems With Degenerate Characteristic Structure. In: III Workshop em EDP, 1993, Rio de Janeiro. *Matematica Contemporanea. Rio de Janeiro: Soc. Bras. de Matematica*, 8 (1995) 225–238.
65. An estimate on the Hausdorff dimension of a concentration set for the incompressible 2-D Euler equations. *Indiana Univ. Math. J.* 43 (1994), no. 2, 521–534.