Pierre Germain French nationality
Courant Institute of Mathematical Sciences Born on Nov 24, 1979
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Employment

2015 - New York University, Courant Institute: Associate professor.

2010 - 2014 New York University, Courant Institute: Assistant professor.

2009 - 2010 ETH (Swiss Federal Polytechnic Institute) Zurich: Postdoctoral fellow.

2006 - 2009 New York University, Courant Institute: Instructor.

Education

2008 University Paris 7: "Habilitation à diriger des recherches"
Thesis title: "Analysis of evolution partial differential equations arising in physics and differential geometry"

2005 - 2006 Princeton University: visitor at the Mathematics Department.

2003 - 2005 Ecole Polytechnique, Paris: PhD in Mathematics
Thesis title: "Weak and strong solutions of non-linear partial differential evolution equations"
Thesis advisor: Isabelle Gallagher.

2001 - 2003 Ecole Nationale Supérieure des Télécommunications, Paris: Master of Science (applied mathematics).

1998 - 2001 Ecole Polytechnique, Paris: Master of Science (pure and applied mathematics).

Awards

2015 - 2018 Recipient of the NSF Grant DMS- 1501019 "Weak Turbulence".

2012 - 2014 Alfred P. Sloan Research Fellow.

2011 - 2018 Recipient of the NSF Grant DMS-1101269
"Space-Time Resonances and Asymptotics; Stability of Self-Similar Solutions".

2006 Ecole Polytechnique Mathematics Department Award for a PhD dissertation.

Publications

1. Equations de Navier-Stokes en deux dimensions : existence et comportement asymptotique de solutions d'énergie infinie, *Bull. Sci. Math.* 130 (2006), no.2, 123–151.

2. Multipliers, Paramultipliers, and weak-strong uniqueness for the Navier-Stokes equations, *J. Differential Equations* 226 (2006), no. 2, 373–428.

3. Regularity of solutions to the Navier-Stokes equations evolving from small data in BMO-1, with N. Pavlovic and G. Staffilani, *Int. Math. Res. Not. IMRN* 2007, no. 21.

4. Global infinite energy solutions of the critical semilinear wave equation, *Rev. Mat. Iberoam.* 24 (2008), no. 2, 463–497.

5. Strong solutions and weak-strong uniqueness for the nonhomogeneous Navier-Stokes equation, *J. Anal. Math.* 105 (2008), 169–196.

6. Besov spaces and self-similar solutions for the wave-map equation, *Comm. Partial Differential Equations* 33 (2008), no. 7-9, 1571–1596.

7. Finite energy scattering for the Lorentz-Maxwell equation, *Ann. Henri Poincaré* 9 (2008), no. 5, 927–943.

8. The second iterate for the Navier-Stokes equation, *J. Funct. Anal.* 255 (2008), no. 9, 2248–2264.

9. On the existence of smooth self-similar blow up profiles for the wave map equation, *Comm. Pure Appl. Math.* 62 (2009), no. 5, 706–728.

10. Global solutions for 3D quadratic Schrödinger equations, with N. Masmoudi and J. Shatah, *Int. Math. Res. Not. IMRN* 2009, no. 3, 414–432.

11. Self-similar solutions for the Schrödinger map equation, with J. Shatah and C. Zeng, *Math. Z.* 264 (2010), no. 3, 697–707.

12. Weak-strong uniqueness for the compressible isentropic Navier-Stokes equation, *J. Math. Fluid Mech.* 13 (2011), no. 1, 137–146.

13. Bilinear oscillatory integrals and boundedness for new bilinear multipliers, with F. Bernicot, *Adv. Math.* 225 (2010), no. 4, 1739–1785.

14. Global solutions for the gravity water waves equation in dimension 3, with N. Masmoudi and J. Shatah, *Ann. Math.*, 175 (2012), no. 2, 691–754.

15. Global solutions for 2D quadratic Schrodinger equations, with N. Masmoudi and J. Shatah, *J. Math. Pures Appl.* (9) 97 (2012), no. 5, 505–543.

16. Global solutions for coupled Klein-Gordon equations with different speeds, *Ann. Inst. Fourier (Grenoble)* 61 (2011), no. 6, 2463–2506.

17. Self-similar expanders of the harmonic map flow, with M. Rupflin, *Ann. Inst. H. Poincare Anal. Non Lineaire* 28 (2011), no. 5, 743–773.

18. Boundedness of bilinear multipliers whose symbols have a narrow support, with F. Bernicot, J. Anal. Math. 119 (2013), 166–212.

19. Global existence for the Euler-Maxwell system, with N. Masmoudi, accepted by *Ann. Sci. Ecole Norm. Sup.*

20. On the open sea propagation of water waves generated by a moving bed, with A. Constantin, *Philos. Trans. R. Soc. Lond. Ser. A Math. Phys. Eng. Sci.* 370 (2012), no. 1964, 1587–1601.

21. Bilinear dispersive estimates via space time resonances. Part I: the one-dimensional

case, with F. Bernicot, *Anal. PDE* 6 (2013), no. 3, 687–722.

22. Non-neutral global solutions for the electron Euler-Poisson system in 3D, with N. Masmoudi and B. Pausader, *SIAM J. Math. Anal.* 45 (2013), no. 1, 267–278.

23. Well-posedness of the Navier-Stokes-Maxwell equations, with S. Ibrahim and N. Masmoudi, accepted by *Proceedings of the Royal Society of Edinburgh Section A.*

24. Global existence for capillary water-waves, with N. Masmoudi and J. Shatah, accepted by *Comm. Pure Appl. Math.*

25. The finite energy method for compressible fluids. The Navier-Stokes-Korteweg model, with P. LeFloch, accepted by *Comm. Pure and Appl. Math.*

26. Instability of some equatorially trapped waves, with A. Constantin, preprint.

27. Nonlinear resonances with a potential: multilinear estimates and an application to NLS, with Z. Hani and S. Walsh, accepted by *Int. Math. Res. Not. IMRN.*

28. The weakly nonlinear large box limit of the 2D cubic nonlinear Schrodinger equation, with E. Faou and Z. Hani, accepted by *Journam AMS.*

29. Bilinear dispersive estimates via space-time resonances, part II: dimensions 2 and 3, with F. Bernicot, *Arch. Ration. Mech. Anal.* 214 (2014), no. 2, 617–669.

30. An extension of the Derrida-Lebowitz-Speer-Spohn equation, with C. Bordenave, preprint.

31. On the continuous resonant equation for NLS: I. Deterministic analysis, with L. Thomann and Z. Hani, preprint.

32. On the continuous resonant equation for NLS: II. Statistical analysis, with L. Thomann and Z. Hani, preprint.

33. Asymptotic stability of solitons for mKdV, with F. Pusateri and F. Rousset, preprint.

34. Dynamics near the subcritical transition of the 3D Couette flow I: Below threshold case, with J. Bedrossian and N. Masmoudi, preprint.

35. Dynamics near the subcritical transition of the 3D Couette flow I: Above threshold case, with J. Bedrossian and N. Masmoudi, preprint.