

Bibliography

- Alazard, T. (2006). Low Mach number limit of the full Navier-Stokes equations, *Arch. Ration. Mech. Anal.* **180**, 1, pp. 1–73.
- Alazard, T. and Carles, R. (2007a). Loss of regularity for super-critical nonlinear Schrödinger equations, archived as [math.AP/0701857](#).
- Alazard, T. and Carles, R. (2007b). Supercritical geometric optics for nonlinear Schrödinger equations, archived as [arXiv:0704.2488](#).
- Alinhac, S. (1995a). *Blowup for nonlinear hyperbolic equations* (Birkhäuser Boston Inc., Boston, MA).
- Alinhac, S. (1995b). Explosion géométrique pour des systèmes quasi-linéaires, *Amer. J. Math.* **117**, 4, pp. 987–1017.
- Alinhac, S. (2002). A minicourse on global existence and blowup of classical solutions to multidimensional quasilinear wave equations, in *Journées “Équations aux Dérivées Partielles” (Forges-les-Eaux, 2002)* (Univ. Nantes, Nantes), pp. Exp. No. I, 33.
- Alinhac, S. and Gérard, P. (1991). *Opérateurs pseudo-différentiels et théorème de Nash-Moser*, Savoirs Actuels (InterEditions, Paris).
- Bahouri, H. and Gérard, P. (1999). High frequency approximation of solutions to critical nonlinear wave equations, *Amer. J. Math.* **121**, 1, pp. 131–175.
- Bambusi, D. and Sacchetti, A. (2007). Exponential times in the one-dimensional Gross–Pitaevskii equation with multiple well potential, *Comm. Math. Phys.* **275**, 1, pp. 1–36.
- Barab, J. E. (1984). Nonexistence of asymptotically free solutions for nonlinear Schrödinger equation, *J. Math. Phys.* **25**, pp. 3270–3273.
- Bégout, P. and Vargas, A. (2007). Mass concentration phenomena for the L^2 -critical nonlinear Schrödinger equation, *Trans. Amer. Math. Soc.* **359**.
- Bensoussan, A., Lions, J.-L. and Papanicolaou, G. (1978). *Asymptotic analysis for periodic structures*, Vol. 5 (North-Holland Publishing Co., Amsterdam).
- Bourgain, J. (1995). Some new estimates on oscillatory integrals, in *Essays on Fourier analysis in honor of Elias M. Stein (Princeton, NJ, 1991)*, *Princeton Math. Ser.*, Vol. 42 (Princeton Univ. Press, Princeton, NJ), pp. 83–112.
- Bourgain, J. (1998). Refinements of Strichartz’ inequality and applications to 2D-NLS with critical nonlinearity, *Internat. Math. Res. Notices*, 5, pp. 253–283.

- Boyd, R. W. (1992). *Nonlinear Optics* (Academic Press, New York).
- Brenier, Y. (2000). Convergence of the Vlasov–Poisson system to the incompressible Euler equations, *Comm. Partial Differential Equations* **25**, 3-4, pp. 737–754.
- Bronski, J. C. and Jerrard, R. L. (2000). Soliton dynamics in a potential, *Math. Res. Lett.* **7**, 2-3, pp. 329–342.
- Burq, N. (1997). Mesures semi-classiques et mesures de défaut, *Astérisque*, 245, Exp. No. 826, 4, pp. 167–195, séminaire Bourbaki, Vol. 1996/97.
- Burq, N., Gérard, P. and Tzvetkov, N. (2004). Strichartz inequalities and the nonlinear Schrödinger equation on compact manifolds, *Amer. J. Math.* **126**, 3, pp. 569–605.
- Burq, N., Gérard, P. and Tzvetkov, N. (2005). Multilinear eigenfunction estimates and global existence for the three dimensional nonlinear Schrödinger equations, *Ann. Sci. École Norm. Sup. (4)* **38**, 2, pp. 255–301.
- Burq, N. and Zworski, M. (2005). Instability for the semiclassical non-linear Schrödinger equation, *Comm. Math. Phys.* **260**, 1, pp. 45–58.
- Carles, R. (2000a). Focusing on a line for nonlinear Schrödinger equations in \mathbb{R}^2 , *Asymptot. Anal.* **24**, 3-4, pp. 255–276.
- Carles, R. (2000b). Geometric optics with caustic crossing for some nonlinear Schrödinger equations, *Indiana Univ. Math. J.* **49**, 2, pp. 475–551.
- Carles, R. (2001a). Geometric optics and long range scattering for one-dimensional nonlinear Schrödinger equations, *Comm. Math. Phys.* **220**, 1, pp. 41–67.
- Carles, R. (2001b). Remarques sur les mesures de Wigner, *C. R. Acad. Sci. Paris, t. 332, Série I* **332**, 11, pp. 981–984.
- Carles, R. (2002). Critical nonlinear Schrödinger equations with and without harmonic potential, *Math. Models Methods Appl. Sci.* **12**, 10, pp. 1513–1523.
- Carles, R. (2003a). Nonlinear Schrödinger equations with repulsive harmonic potential and applications, *SIAM J. Math. Anal.* **35**, 4, pp. 823–843.
- Carles, R. (2003b). Semi-classical Schrödinger equations with harmonic potential and nonlinear perturbation, *Ann. Inst. H. Poincaré Anal. Non Linéaire* **20**, 3, pp. 501–542.
- Carles, R. (2007a). Cascade of phase shifts for nonlinear Schrödinger equations, *J. Hyperbolic Differ. Equ.* **4**, 2, pp. 207–231.
- Carles, R. (2007b). Geometric optics and instability for semi-classical Schrödinger equations, *Arch. Ration. Mech. Anal.* **183**, 3, pp. 525–553.
- Carles, R. (2007c). WKB analysis for nonlinear Schrödinger equations with potential, *Comm. Math. Phys.* **269**, 1, pp. 195–221.
- Carles, R. (2008). On the Cauchy problem in Sobolev spaces for nonlinear Schrödinger equations with potential, *Port. Math. (N. S.)* **65**, to appear.
- Carles, R., Fermanian, C. and Gallagher, I. (2003). On the role of quadratic oscillations in nonlinear Schrödinger equations, *J. Funct. Anal.* **203**, 2, pp. 453–493.
- Carles, R. and Keraani, S. (2007). On the role of quadratic oscillations in nonlinear Schrödinger equations II. The L^2 -critical case, *Trans. Amer. Math. Soc.*

- 359**, 1, pp. 33–62.
- Carles, R., Markowich, P. A. and Sparber, C. (2004). Semiclassical asymptotics for weakly nonlinear Bloch waves, *J. Stat. Phys.* **117**, 1-2, pp. 343–375.
- Carles, R. and Miller, L. (2004). Semiclassical nonlinear Schrödinger equations with potential and focusing initial data, *Osaka J. Math.* **41**, 3, pp. 693–725.
- Carles, R. and Nakamura, Y. (2004). Nonlinear Schrödinger equations with Stark potential, *Hokkaido Math. J.* **33**, 3, pp. 719–729.
- Carles, R. and Rauch, J. (2002). Focusing of spherical nonlinear pulses in \mathbb{R}^{1+3} , *Proc. Amer. Math. Soc.* **130**, 3, pp. 791–804.
- Carles, R. and Rauch, J. (2004a). Focusing of Spherical Nonlinear Pulses in \mathbb{R}^{1+3} II. Nonlinear Caustic, *Rev. Mat. Iberoamericana* **20**, 3, pp. 815–864.
- Carles, R. and Rauch, J. (2004b). Focusing of Spherical Nonlinear Pulses in \mathbb{R}^{1+3} III. Sub and Supercritical cases, *Tohoku Math. J.* **56**, 3, pp. 393–410.
- Cazenave, T. (2003). *Semilinear Schrödinger equations, Courant Lecture Notes in Mathematics*, Vol. 10 (New York University Courant Institute of Mathematical Sciences, New York).
- Cazenave, T. and Haraux, A. (1998). *An introduction to semilinear evolution equations, Oxford Lecture Series in Mathematics and its Applications*, Vol. 13 (The Clarendon Press Oxford University Press, New York), translated from the 1990 French original by Yvan Martel and revised by the authors.
- Cazenave, T. and Weissler, F. (1989). Some remarks on the nonlinear Schrödinger equation in the critical case, in *Lect. Notes in Math.*, Vol. 1394 (Springer-Verlag, Berlin), pp. 18–29.
- Cazenave, T. and Weissler, F. (1990). The Cauchy problem for the critical nonlinear Schrödinger equation in H^s , *Nonlinear Anal. TMA* **14**, pp. 807–836.
- Cazenave, T. and Weissler, F. (1992). Rapidly decaying solutions of the nonlinear Schrödinger equation, *Comm. Math. Phys.* **147**, pp. 75–100.
- Chemin, J.-Y. (1990). Dynamique des gaz à masse totale finie, *Asymptotic Anal.* **3**, 3, pp. 215–220.
- Chemin, J.-Y. (1998). *Perfect incompressible fluids, Oxford Lecture Series in Mathematics and its Applications*, Vol. 14 (The Clarendon Press Oxford University Press, New York), translated from the 1995 French original by I. Gallagher and D. Iftimie.
- Cheverry, C. (2004). Propagation of oscillations in real vanishing viscosity limit, *Comm. Math. Phys.* **247**, 3, pp. 655–695.
- Cheverry, C. (2005). Sur la propagation de quasi-singularités, in *Séminaire: Équations aux Dérivées Partielles. 2004–2005* (École Polytech., Palaiseau), pp. Exp. No. VIII, 20.
- Cheverry, C. (2006). Cascade of phases in turbulent flows, *Bull. Soc. Math. France* **134**, 1, pp. 33–82.
- Cheverry, C. and Guès, O. (2007). Counter-examples to concentration-cancellation and supercritical nonlinear geometric optics for the incompressible Euler equations, *Arch. Ration. Mech. Anal.* To appear.
- Christ, M., Colliander, J. and Tao, T. Ill-posedness for nonlinear Schrödinger and wave equations, archived as [arXiv:math.AP/0311048](https://arxiv.org/abs/math.AP/0311048).

- Cicognani, M. and Colombini, F. (2006a). Loss of derivatives in evolution Cauchy problems, *Ann. Univ. Ferrara Sez. VII Sci. Mat.* **52**, 2, pp. 271–280.
- Cicognani, M. and Colombini, F. (2006b). Modulus of continuity of the coefficients and loss of derivatives in the strictly hyperbolic Cauchy problem, *J. Differential Equations* **221**, 1, pp. 143–157.
- Dalfovo, F., Giorgini, S., Pitaevskii, L. P. and Stringari, S. (1999). Theory of Bose-Einstein condensation in trapped gases, *Rev. Mod. Phys.* **71**, 3, pp. 463–512.
- Dereziński, J. and Gérard, C. (1997). *Scattering theory of quantum and classical N-particle systems* (Texts and Monographs in Physics, Springer Verlag, Berlin Heidelberg).
- Duistermaat, J. J. (1974). Oscillatory integrals, Lagrange immersions and unfolding of singularities, *Comm. Pure Appl. Math.* **27**, pp. 207–281.
- Dunford, N. and Schwartz, J. T. (1963). *Linear operators. Part II: Spectral theory. Self adjoint operators in Hilbert space*, With the assistance of William G. Bade and Robert G. Bartle (Interscience Publishers John Wiley & Sons New York-London).
- Evans, L. C. (1998). *Partial differential equations, Graduate Studies in Mathematics*, Vol. 19 (American Mathematical Society, Providence, RI).
- Feynman, R. P. and Hibbs, A. R. (1965). *Quantum mechanics and path integrals (International Series in Pure and Applied Physics)* (Maidenhead, Berksh.: McGraw-Hill Publishing Company, Ltd., 365 p.).
- Foschi, D. (2005). Inhomogeneous Strichartz estimates, *J. Hyperbolic Differ. Equ.* **2**, 1, pp. 1–24.
- Fujiwara, D. (1979). A construction of the fundamental solution for the Schrödinger equation, *J. Analyse Math.* **35**, pp. 41–96.
- Gallagher, I. and Gérard, P. (2001). Profile decomposition for the wave equation outside a convex obstacle, *J. Math. Pures Appl. (9)* **80**, 1, pp. 1–49.
- Gérard, P. (1993). Remarques sur l'analyse semi-classique de l'équation de Schrödinger non linéaire, in *Séminaire sur les Équations aux Dérivées Partielles, 1992–1993* (École Polytech., Palaiseau), pp. Exp. No. XIII, 13.
- Gérard, P. (1996). Oscillations and concentration effects in semilinear dispersive wave equations, *J. Funct. Anal.* **141**, 1, pp. 60–98.
- Gérard, P. (1998). Description du défaut de compacité de l'injection de Sobolev, *ESAIM Control Optim. Calc. Var.* **3**, pp. 213–233 (electronic).
- Gérard, P., Markowich, P. A., Mauser, N. J. and Poupaud, F. (1997). Homogenization limits and Wigner transforms, *Comm. Pure Appl. Math.* **50**, 4, pp. 323–379.
- Ginibre, J. (1995). Introduction aux équations de Schrödinger non linéaires, Cours de DEA, Paris Onze Édition.
- Ginibre, J. (1997). An introduction to nonlinear Schrödinger equations, in R. Agemi, Y. Giga and T. Ozawa (eds.), *Nonlinear waves (Sapporo, 1995)*, GAKUTO International Series, Math. Sciences and Appl. (Gakkōtoshō, Tokyo), pp. 85–133.
- Ginibre, J. and Ozawa, T. (1993). Long range scattering for nonlinear Schrödinger and Hartree equations in space dimension $n \geq 2$, *Comm. Math. Phys.* **151**, 3, pp. 619–645.

- Ginibre, J., Ozawa, T. and Velo, G. (1994). On the existence of the wave operators for a class of nonlinear Schrödinger equations, *Ann. IHP (Physique Théorique)* **60**, pp. 211–239.
- Ginibre, J. and Velo, G. (1979). On a class of nonlinear Schrödinger equations. II Scattering theory, general case, *J. Funct. Anal.* **32**, pp. 33–71.
- Ginibre, J. and Velo, G. (1985a). The global Cauchy problem for the nonlinear Schrödinger equation revisited, *Ann. Inst. H. Poincaré Anal. Non Linéaire* **2**, pp. 309–327.
- Ginibre, J. and Velo, G. (1985b). Scattering theory in the energy space for a class of nonlinear Schrödinger equations, *J. Math. Pures Appl. (9)* **64**, 4, pp. 363–401.
- Ginibre, J. and Velo, G. (1992). Smoothing properties and retarded estimates for some dispersive evolution equations, *Comm. Math. Phys.* **144**, 1, pp. 163–188.
- Grenier, E. (1998). Semiclassical limit of the nonlinear Schrödinger equation in small time, *Proc. Amer. Math. Soc.* **126**, 2, pp. 523–530.
- Grigis, A. and Sjöstrand, J. (1994). *Microlocal analysis for differential operators, London Mathematical Society Lecture Note Series*, Vol. 196 (Cambridge University Press, Cambridge), an introduction.
- Hayashi, N. and Naumkin, P. (1998). Asymptotics for large time of solutions to the nonlinear Schrödinger and Hartree equations, *Amer. J. Math.* **120**, 2, pp. 369–389.
- Hayashi, N. and Naumkin, P. (2006). Domain and range of the modified wave operator for Schrödinger equations with a critical nonlinearity, *Comm. Math. Phys.* **267**, 2, pp. 477–492.
- Hayashi, N. and Tsutsumi, Y. (1987). Remarks on the scattering problem for nonlinear Schrödinger equations, in *Differential equations and mathematical physics (Birmingham, Ala., 1986)*, *Lectures Notes in Math.*, Vol. 1285 (Springer, Berlin), pp. 162–168.
- Hörmander, L. (1994). *The analysis of linear partial differential operators* (Springer-Verlag, Berlin).
- Hörmander, L. (1995). Symplectic classification of quadratic forms, and general Mehler formulas, *Math. Z.* **219**, 3, pp. 413–449.
- Hunter, J. and Keller, J. (1987). Caustics of nonlinear waves, *Wave motion* **9**, pp. 429–443.
- Ibrahim, S. (2004). Geometric Optics for Nonlinear Concentrating Waves in a Focusing and non Focusing two geometries, *Commun. Contemp. Math.* **6**, 1, pp. 1–23.
- Joly, J.-L., Métivier, G. and Rauch, J. (1995). Focusing at a point and absorption of nonlinear oscillations, *Trans. Amer. Math. Soc.* **347**, 10, pp. 3921–3969.
- Joly, J.-L., Métivier, G. and Rauch, J. (1996a). Nonlinear oscillations beyond caustics, *Comm. Pure Appl. Math.* **49**, 5, pp. 443–527.
- Joly, J.-L., Métivier, G. and Rauch, J. (1996b). Several recent results in nonlinear geometric optics, in *Partial differential equations and mathematical physics (Copenhagen, 1995; Lund, 1995)* (Birkhäuser Boston, Boston, MA), pp. 181–206.

- Joly, J.-L., Métivier, G. and Rauch, J. (1997a). Caustics for dissipative semilinear oscillations, in F. Colombini and N. Lerner (eds.), *Geometrical Optics and Related Topics* (Birkhäuser), pp. 245–266.
- Joly, J.-L., Métivier, G. and Rauch, J. (1997b). Estimations L^p d'intégrales oscillantes, in *Séminaire Équations aux Dérivées Partielles, 1996–1997* (École Polytech., Palaiseau), pp. Exp. No. VII, 17.
- Joly, J.-L., Métivier, G. and Rauch, J. (2000). Caustics for dissipative semilinear oscillations, *Mem. Amer. Math. Soc.* **144**, 685, pp. viii+72.
- Kato, T. (1987). On nonlinear Schrödinger equations, *Ann. IHP (Phys. Théor.)* **46**, 1, pp. 113–129.
- Kato, T. (1989). Nonlinear Schrödinger equations, in *Schrödinger operators (Sønderborg, 1988), Lecture Notes in Phys.*, Vol. 345 (Springer, Berlin), pp. 218–263.
- Keel, M. and Tao, T. (1998). Endpoint Strichartz estimates, *Amer. J. Math.* **120**, 5, pp. 955–980.
- Keraani, S. (2001). On the defect of compactness for the Strichartz estimates of the Schrödinger equations, *J. Differential Equations* **175**, 2, pp. 353–392.
- Keraani, S. (2002). Semiclassical limit for a class of nonlinear Schrödinger equations with potential, *Comm. Partial Differential Equations* **27**, 3-4, pp. 693–704.
- Keraani, S. (2005). Limite semi-classique pour l'équation de Schrödinger non-linéaire avec potentiel harmonique, *C. R. Math. Acad. Sci. Paris* **340**, 11, pp. 809–814.
- Keraani, S. (2006). Semiclassical limit for nonlinear Schrödinger equation with potential. II, *Asymptot. Anal.* **47**, 3-4, pp. 171–186.
- Klainerman, S. (1985). Uniform decay estimates and the Lorentz invariance of the classical wave equation, *Comm. Pure Appl. Math.* **38**, 3, pp. 321–332.
- Kolomeisky, E. B., Newman, T. J., Straley, J. P. and Qi, X. (2000). Low-dimensional Bose liquids: Beyond the Gross-Pitaevskii approximation, *Phys. Rev. Lett.* **85**, 6, pp. 1146–1149.
- Kossioris, G. T. (1993). Formation of singularities for viscosity solutions of Hamilton-Jacobi equations in higher dimensions, *Comm. Partial Differential Equations* **18**, 7-8, pp. 1085–1108.
- Kuksin, S. B. (1995). On squeezing and flow of energy for nonlinear wave equations, *Geom. Funct. Anal.* **5**, 4, pp. 668–701.
- Kwong, M. K. (1989). Uniqueness of positive solutions of $\Delta u - u + u^p = 0$ in \mathbb{R}^n , *Arch. Rational Mech. Anal.* **105**, 3, pp. 243–266.
- Landau, L. and Lifschitz, E. (1967). *Physique théorique ("Landau-Lifschitz"). Tome III: Mécanique quantique. Théorie non relativiste* (Éditions Mir, Moscow), deuxième édition, Traduit du russe par Édouard Gloukhian.
- Lax, P. D. (1957). Asymptotic solutions of oscillatory initial value problems, *Duke Math. J.* **24**, pp. 627–646.
- Lebeau, G. (1992). Contrôle de l'équation de Schrödinger, *J. Math. Pures Appl. (9)* **71**, 3, pp. 267–291.
- Lebeau, G. (2001). Non linear optic and supercritical wave equation, *Bull. Soc. Roy. Sci. Liège* **70**, 4-6, pp. 267–306 (2002), hommage à Pascal Laubin.

- Lebeau, G. (2005). Perte de régularité pour les équations d'ondes sur-critiques, *Bull. Soc. Math. France* **133**, pp. 145–157.
- Lin, F. and Zhang, P. (2005). Semiclassical limit of the Gross–Pitaevskii equation in an exterior domain, *Arch. Rational Mech. Anal.* **179**, 1, pp. 79–107.
- Lions, P.-L. (1996). *Mathematical topics in fluid mechanics. Vol. 1, Oxford Lecture Series in Mathematics and its Applications*, Vol. 3 (The Clarendon Press Oxford University Press, New York), incompressible models, Oxford Science Publications.
- Lions, P.-L. and Paul, T. (1993). Sur les mesures de Wigner, *Rev. Mat. Iberoamericana* **9**, 3, pp. 553–618.
- Ludwig, D. (1966). Uniform asymptotic expansions at a caustic, *Comm. Pure Appl. Math.* **19**, pp. 215–250.
- Majda, A. (1984). *Compressible fluid flow and systems of conservation laws in several space variables*, *Applied Mathematical Sciences*, Vol. 53 (Springer-Verlag, New York).
- Makino, T., Ukai, S. and Kawashima, S. (1986). Sur la solution à support compact de l'équation d'Euler compressible, *Japan J. Appl. Math.* **3**, 2, pp. 249–257.
- Masaki, S. (2007). Semi-classical analysis for Hartree equations in some super-critical cases, *Ann. Henri Poincaré* **8**, 6, pp. 1037–1069.
- Maslov, V. P. and Fedoriuk, M. V. (1981). *Semiclassical approximation in quantum mechanics, Mathematical Physics and Applied Mathematics*, Vol. 7 (D. Reidel Publishing Co., Dordrecht), translated from the Russian by J. Niederle and J. Tolar, Contemporary Mathematics, 5.
- Merle, F. and Vega, L. (1998). Compactness at blow-up time for L^2 solutions of the critical nonlinear Schrödinger equation in 2D, *Internat. Math. Res. Notices*, 8, pp. 399–425.
- Métivier, G. (2004a). Exemples d'instabilités pour des équations d'ondes non linéaires (d'après G. Lebeau), *Astérisque*, 294, pp. vii, 63–75.
- Métivier, G. (2004b). *Small viscosity and boundary layer methods*, Modeling and Simulation in Science, Engineering and Technology (Birkhäuser Boston Inc., Boston, MA), theory, stability analysis, and applications.
- Métivier, G. (2005). Remarks on the well-posedness of the nonlinear Cauchy problem, in *Geometric analysis of PDE and several complex variables*, *Contemp. Math.*, Vol. 368 (Amer. Math. Soc., Providence, RI), pp. 337–356.
- Métivier, G. and Schochet, S. (1998). Trilinear resonant interactions of semilinear hyperbolic waves, *Duke Math. J.* **95**, 2, pp. 241–304.
- Moyua, A., Vargas, A. and Vega, L. (1999). Restriction theorems and maximal operators related to oscillatory integrals in \mathbb{R}^3 , *Duke Math. J.* **96**, 3, pp. 547–574.
- Nakanishi, K. and Ozawa, T. (2002). Remarks on scattering for nonlinear Schrödinger equations, *NoDEA Nonlinear Differential Equations Appl.* **9**, 1, pp. 45–68.
- Nier, F. (1996). A semi-classical picture of quantum scattering, *Ann. Sci. École Norm. Sup. (4)* **29**, 2, pp. 149–183.
- Ozawa, T. (1991). Long range scattering for nonlinear Schrödinger equations in one space dimension, *Comm. Math. Phys.* **139**, pp. 479–493.

- Pitaevskii, L. and Stringari, S. (2003). *Bose-Einstein condensation, International Series of Monographs on Physics*, Vol. 116 (The Clarendon Press Oxford University Press, Oxford).
- Rauch, J. and Keel, M. (1999). Lectures on geometric optics, in *Hyperbolic equations and frequency interactions (Park City, UT, 1995)* (Amer. Math. Soc., Providence, RI), pp. 383–466. See also *Lectures on nonlinear geometric optics*, available at <http://www.math.lsa.umich.edu/~rauch/courses.html>
- Reed, M. and Simon, B. (1975). *Methods of modern mathematical physics. II. Fourier analysis, self-adjointness* (Academic Press [Harcourt Brace Jovanovich Publishers], New York).
- Robert, D. (1987). *Autour de l'approximation semi-classique, Progress in Mathematics*, Vol. 68 (Birkhäuser Boston Inc., Boston, MA).
- Robert, D. (1998). Semi-classical approximation in quantum mechanics. A survey of old and recent mathematical results, *Helv. Phys. Acta* **71**, 1, pp. 44–116.
- Sacchetti, A. (2005). Nonlinear double well Schrödinger equations in the semi-classical limit, *J. Stat. Phys.* **119**, 5-6, pp. 1347–1382.
- Schwartz, J. T. (1969). *Nonlinear functional analysis* (Gordon and Breach Science Publishers, New York), notes by H. Fattorini, R. Nirenberg and H. Porta, with an additional chapter by Hermann Karcher, Notes on Mathematics and its Applications.
- Serre, D. (1997). Solutions classiques globales des équations d'Euler pour un fluide parfait compressible, *Ann. Inst. Fourier* **47**, pp. 139–153.
- Sjöstrand, J. (1982). Singularités analytiques microlocales, in *Astérisque*, Vol. 95 (Soc. Math. France, Paris), pp. 1–166.
- Sone, Y., Aoki, K., Takata, S., Sugimoto, H. and Bobylev, A. V. (1996). Inappropriateness of the heat-conduction equation for description of a temperature field of a stationary gas in the continuum limit: examination by asymptotic analysis and numerical computation of the Boltzmann equation, *Phys. Fluids* **8**, 2, pp. 628–638.
- Sparber, C., Markowich, P. A. and Mauser, N. J. (2003). Wigner functions versus WKB-methods in multivalued geometrical optics, *Asymptot. Anal.* **33**, 2, pp. 153–187.
- Stein, E. M. (1993). *Harmonic analysis: real-variable methods, orthogonality, and oscillatory integrals, Princeton Mathematical Series*, Vol. 43 (Princeton University Press, Princeton, NJ), with the assistance of Timothy S. Murphy, Monographs in Harmonic Analysis, III.
- Strauss, W. A. (1974). Nonlinear scattering theory, in J. Lavita and J. P. Marchand (eds.), *Scattering theory in mathematical physics* (Reidel).
- Strauss, W. A. (1981). Nonlinear scattering theory at low energy, *J. Funct. Anal.* **41**, pp. 110–133.
- Sulem, C. and Sulem, P.-L. (1999). *The nonlinear Schrödinger equation, Self-focusing and wave collapse* (Springer-Verlag, New York).
- Szeftel, J. (2005). Propagation et réflexion des singularités pour l'équation de Schrödinger non linéaire, *Ann. Inst. Fourier (Grenoble)* **55**, 2, pp. 573–671.
- Tao, T. (2006). *Nonlinear dispersive equations, CBMS Regional Conference Series in Mathematics*, Vol. 106 (Published for the Conference Board of the

- Mathematical Sciences, Washington, DC), local and global analysis.
- Taylor, M. (1981). *Pseudodifferential operators*, *Princeton Mathematical Series*, Vol. 34 (Princeton University Press, Princeton, N.J.).
- Taylor, M. (1997). *Partial differential equations. III*, *Applied Mathematical Sciences*, Vol. 117 (Springer-Verlag, New York), nonlinear equations.
- Teufel, S. (2003). *Adiabatic perturbation theory in quantum dynamics*, *Lecture Notes in Mathematics*, Vol. 1821 (Springer).
- Thirring, W. (1981). *A course in mathematical physics. Vol. 3* (Springer-Verlag, New York), quantum mechanics of atoms and molecules, Translated from the German by Evans M. Harrell, *Lecture Notes in Physics*, 141.
- Thomann, L. (2007). Instabilities for supercritical Schrödinger equations in analytic manifolds, archived as [arXiv:0707.1785](https://arxiv.org/abs/0707.1785).
- Tsutsumi, Y. (1987). L^2 -solutions for nonlinear Schrödinger equations and nonlinear groups, *Funkcial. Ekvac.* **30**, 1, pp. 115–125.
- Tsutsumi, Y. and Yajima, K. (1984). The asymptotic behavior of nonlinear Schrödinger equations, *Bull. Amer. Math. Soc. (N.S.)* **11**, 1, pp. 186–188.
- Weinstein, M. I. (1985). Modulational stability of ground states of nonlinear Schrödinger equations, *SIAM J. Math. Anal.* **16**, 3, pp. 472–491.
- Whitham, G. B. (1999). *Linear and nonlinear waves*, *Pure and Applied Mathematics* (John Wiley & Sons Inc., New York).
- Xin, Z. (1998). Blowup of smooth solutions of the compressible Navier-Stokes equation with compact density, *Comm. Pure Appl. Math.* **51**, pp. 229–240.
- Yajima, K. (1979). The quasiclassical limit of quantum scattering theory, *Comm. Math. Phys.* **69**, 2, pp. 101–129.
- Yajima, K. (1987). Existence of solutions for Schrödinger evolution equations, *Comm. Math. Phys.* **110**, pp. 415–426.
- Yajima, K. (1996). Smoothness and non-smoothness of the fundamental solution of time dependent Schrödinger equations, *Comm. Math. Phys.* **181**, 3, pp. 605–629.
- Zakharov, V. E. and Shabat, A. B. (1971). Exact theory of two-dimensional self-focusing and one-dimensional self-modulation of waves in nonlinear media, *Ž. Èksper. Teoret. Fiz.* **61**, 1, pp. 118–134.