

## Éric Séré : travaux et publications.

### Articles publiés ou acceptés :

1. V. Coti-Zelati, I. Ekeland, É. Séré, Solutions doublement asymptotiques de systèmes hamiltoniens convexes, *C.R.A.S. 310, Série I (1990)*, 631-633.
2. V. Coti-Zelati, I. Ekeland, É. Séré, A variational approach to homoclinic orbits in Hamiltonian systems, *Math. Annalen 288 (1990)*, 133-160.
3. É. Séré, Existence of infinitely many homoclinic orbits in Hamiltonian systems, *Math. Zeitschrift 209 (1992)*, 27-42.
4. É. Séré, Looking for the Bernoulli Shift, *Annales de l'I.H.P., Analyse non linéaire 10, n° 5 (1993)*, 561-590.
5. É. Séré, Bases orthonormées de paquets d'ondelettes, *Rev. Mat. Iberoam. 10, N° 2 (1994)*, 349-362.
6. X. Fang, É. Séré, Adapted multiple folding local trigonometric transforms and wavelet packets, *Appl. Comput. Harmon. Anal. 1, N° 2 (1994)*, 169-179.
7. É. Séré, Localisation fréquentielle des paquets d'ondelettes, *Rev. Mat. Iberoam. 11, N° 2 (1995)*, 334-354.
8. É. Séré, Homoclinic orbits on compact hypersurfaces in  $\mathbf{R}^{2N}$ , of restricted contact type, *Comm. Math. Phys. 172 (1995)*, 293-316.
9. K. Cieliebak, É. Séré, Pseudo-holomorphic curves and multiplicity of homoclinic orbits, *Duke Math. J. 77, n° 2 (1995)*, 483-518.
10. M.J. Esteban, É. Séré, Stationary states of the nonlinear Dirac equation: a variational approach, *Comm. Math. Phys. 171 (1995)*, 323-350.
11. M.J. Esteban, É. Séré, Existence de solutions stationnaires pour l'équation de Dirac non-linéaire et le système de Dirac-Poisson, *C.R.A.S. 319, Série I, 1213-1218*.
12. M.J. Esteban, V. Georgiev, É. Séré, Stationary solutions of the Maxwell-Dirac and the Klein Gordon-Dirac equations, *Calc. Var. 4 (1996)*, 265-281.

- 13.** M.J. Esteban, V. Georgiev, É. Séré, Bound-state solutions of the Maxwell-Dirac and the Klein-Gordon-Dirac systems, *Lett. Math. Phys.* *38*, No. 2 (1996), 217-220.
- 14.** B. Buffoni, É. Séré, A global condition for quasi-random behavior in a class of conservative systems, *Comm. Pure Appl. Math. Vol. XLIX* (1996), 285-305.
- 15.** F. Dibos, É. Séré, An approximation result for the minimizers of the Mumford-Shah functional, *Boll. UMI* *7*, 11-A (1997), 149-162.
- 16.** K. Cieliebak, É. Séré, Pseudo-holomorphic curves and the Shadowing Lemma, *Duke Math. J.* *99*, No. 1 (1999), 41-73.
- 17.** M.J. Esteban, É. Séré, Solutions of the Dirac-Fock equations for atoms and molecules, *Comm. Math. Phys.* *203* (1999), 499-530.
- 18.** J. Dolbeault, M.J. Esteban, É. Séré, Variational characterization for eigenvalues of Dirac operators, *Calc. Var.* *10* (2000), 321-347.
- 19.** J. Dolbeault, M.J. Esteban, É. Séré, On the eigenvalues of operators with gaps, application to Dirac operators, *Journ. Funct. Anal.* *174* (2000), 208-226.
- 20.** J. Dolbeault, M.J. Esteban, É. Séré, M. Vanbreugel, Minimization methods for the one-particle Dirac equation, *Phys. Rev. Let.* *85*, No. 19 (2000), 4020-4023.
- 21.** M.J. Esteban, É. Séré, Nonrelativistic limit of the Dirac-Fock equations, *Ann. H. Poincaré* *2* (2001), 941-961.
- 22.** M.J. Esteban, É. Séré, A max-min principle for the Dirac-Fock functional, *Contemp. Math.* *307* (2002), 135-141.
- 23.** M.J. Esteban, É. Séré, An overview on linear and nonlinear Dirac equations. *Discrete Contin. Dyn. Syst.* *8*, No.2, 381-397 (2002).
- 24.** B. Buffoni, É. Séré, J.F. Toland, Surface water waves as saddle points of the energy, *Calc. Var.* *17* (2003), no. 2, 199-220.
- 25.** J. Dolbeault, M.J. Esteban, É. Séré, A variational method for relativistic computations in atomic and molecular physics, *Int. J. Quantum Chemistry* *93* (2003), 149-155.

- 26.** B. Buffoni, É. Séré, J.F. Toland, minimisation methods for quasi-linear problems, with an application to periodic water waves, *SIAM J. Math. Anal.* 36 (2005), no. 4, 1080–1094.
- 27.** J.M. Barbaroux, M.J. Esteban, É. Séré, Some connexions between Dirac-Fock and electron-positron Hartree-Fock, *Ann. Henri Poincaré* 6 (2005), no. 1, 85–102.
- 28.** C. Hainzl, M. Lewin, É. Séré, Existence of a stable vacuum in the Bogoliubov-Dirac-Fock approximation, *Comm. Math. Phys.* 257 (2005), no. 3, 515–562.
- 29.** C. Hainzl, M. Lewin, É. Séré, Self-consistent solution for the polarized vacuum in a no-photon QED model, *J. Phys. A* 38 (2005), no. 20, 4483–4499.
- 30.** J. Dolbeault, M.J. Esteban, É. Séré, General results on the eigenvalues of operators with gaps arising from both ends of the gaps, *Journal of the E.M.S.* 8 (2006), no. 2, 243–251.
- 31.** C. Carminati, É. Séré, K. Tanaka, The fixed energy problem for a class of nonconvex singular Hamiltonian systems, *Journ. Diff. Eq.* 230 (2006), no. 1, 362–377.
- 32.** B. Buffoni, M.J. Esteban, É. Séré, Normalized Solutions to Strongly Indefinite Semilinear Equations, *Advanced Nonlinear Studies* 6 (2006), no. 2, 333–357.
- 33.** C. Hainzl, M. Lewin, É. Séré, J.P. Solovej, A minimization method for relativistic electrons in a mean-field approximation of quantum electrodynamics, *Phys. Rev. A* 76 (2007), 052104.
- 34.** M.J. Esteban, M. Lewin, É. Séré, Variational methods in relativistic quantum mechanics, *review, Bull. Amer. Math. Soc. (N.S.)* 45 (2008), no. 4, 535–593.
- 35.** C. Hainzl, M. Lewin, É. Séré, Existence of atoms and molecules in the mean-field approximation of no-photon Quantum Electrodynamics, *Arch. Rational Mech. Anal.* 192 (2009), no. 3, 453–499.
- 36.** P. Gravejat, M. Lewin, É. Séré, Ground state and charge renormalization in a nonlinear model of relativistic atoms, *Comm. Math. Phys.* 286 (2009), no. 1, 179–215.

- 37.** M. Lewin, É. Séré, Spectral pollution and how to avoid it, *Proc. London Math. Soc.* 100 (2010), no. 3, 864–900.
- 38.** P. Gravejat, M. Lewin, É. Séré, Renormalization and asymptotic expansion of Dirac’s polarized vacuum, *Comm. Math. Phys.* 306 (2011), no. 1, 1–33.
- 39.** P. Gravejat, C. Hainzl, M. Lewin, É. Séré, Construction of the Pauli-Villars-regulated Dirac vacuum in electromagnetic fields, *Arch. Rat. Mech. Anal.*, 208 (2013), no 2, 603–665.
- 40.** F. Cacciafesta, É. Séré, Local smoothing estimates for the massless Dirac-Coulomb equation in 2 and 3 dimensions, *J. Funct. Anal.* 271 (2016), no. 8, 2339–2358.
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- 43.** M.J. Esteban, M. Lewin, É. Séré, Domains for Dirac-Coulomb min-max levels, *Rev. Mat. Iberoam.* 35 (2019), no. 3, 877–924.
- 44.** I. Ekeland, É. Séré, A surjection theorem for singular perturbations with loss of derivatives, *Journal of the E.M.S.* 23 (2021), no. 10, 3323–3349.
- 45.** C.N. Chen, É. Séré, Multiple front standing waves in the FitzHugh-Nagumo equations, *Journ. Diff. Eq.* 302 (2021), 895–925.
- 46.** M.J. Esteban, M. Lewin, and É. Séré, Dirac-Coulomb operators with general charge distribution. I. Distinguished extension and min-max formulas, *Annales Henri Lebesgue* 4 (2021), 1421–1456.
- 47.** M.J. Esteban, M. Lewin, and É. Séré, Dirac-Coulomb operators with general charge distribution. II. The lowest eigenvalue. *Proc. London Math. Soc.* 123 (2021), no. 4, 345–383.
- 48.** M. Chupin, M.-S. Dupuy, G. Legendre and É. Séré, Convergence analysis of adaptive DIIS algorithms with application to electronic ground state calculations. *ESAIM: M2AN* 55 (2021), no. 6, 2785–2825.

### Preprints :

1. M. Garcia Arroyo, É. Séré, Existence of kink solutions in a discrete model of the polyacetylene molecule, *preprint hal-00769075*.
2. I. Ekeland, É. Séré, An implicit function theorem for non-smooth maps between Fréchet spaces, *preprint arXiv:1502.01561*.
3. F. Cacciafesta, É. Séré and J. Zhang, Strichartz estimates for the massless radial Dirac-Coulomb equation, *preprint arXiv:2101.07185, 2021*.

### Chapitres de livres :

1. A. Cohen, É. Séré, Time-frequency localization by non-stationary wavelet packets, dans : "Subband and Wavelet Transforms - Theory and Design", ed. M. T. Smith and A. Akansu, Kluwer Academic Publisher (1996).
2. J. Dolbeault, M.J. Esteban, É. Séré, Variational methods in relativistic quantum mechanics: new approach to the computation of Dirac eigenvalues, *Mathematical models and methods for ab initio quantum chemistry, 211–226*, Lecture Notes in Chem., 74, Springer, Berlin, 2000.
3. J.P. Desclaux, J. Dolbeault, M.J. Esteban, P. Indelicato, É. Séré, Computational approaches of relativistic models in quantum chemistry, *Handbook of numerical analysis, Vol. X, 453–483*, North-Holland, Amsterdam, 2003.
4. M. Lewin, É. Séré, Spurious modes in Dirac calculations and how to avoid them, *Many-Electron Approaches in Physics, Chemistry and Mathematics, 31–52*, *Mathematical Physics Studies*, Springer (2014).
5. É. Séré, Relativistic theories for molecular models, *Encyclopedia of Applied and Computational Mathematics, 1247–1251* (2015).

### Proceedings :

1. É. Séré, Multibump solutions and topological entropy. *Ambrosetti, Antonio (ed.) et al., Variational methods in nonlinear analysis (proceedings)*. Gordon and Breach Publishers. 161-171 (1995).
2. É. Séré, Hamiltonian systems and nonlinear Dirac equations. *Ambrosetti, A. (ed.) et al., Variational and local methods in the study of Hamiltonian systems (proceedings)*. World Scientific. 118-128 (1995).

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8. M.J. Esteban, É. Séré, Dirac-Fock models for atoms and molecules and related topics, *XIVth International Congress on Mathematical Physics, 21-28, World Sci. Publ., Hackensack, NJ, 2005*.
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10. P. Gravejat, M. Lewin, É. Séré, Deux modèles effectifs pour les champs électromagnétiques dans le vide de Dirac, *Sémin. Laurent Schwartz 2015-2016, Éc. Polytech., Palaiseau, Exposé no. 14* (2016).