Personal information

Surname(s) / First name(s)	**PhD. Federico Cacciafesta**
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General Informations

Place and date of birth	15 July 1985, Rome, Italy
Address	Via dell'arancio 80, 00185, Rome, Italy
Work Address	"Sapienza" universitá di Roma, piazzale Aldo Moro 2, Rome, Italy

Current position

March 2013-	**Post-doc** position at "Sapienza" universitá di Roma

Education

20 February 2012	**Doctor Philosophiae** in *Mathematics*, "Sapienza" Università di Roma
	Thesis: *Dispersive properties of the Dirac equation*
	Supervisor: *Prof. P. D'Ancona*
	Committee: Prof. L. Vega, V. Georgiev, S. Selberg.
15 July 2008	**Master degree** in *Mathematics*, 110/110 cum Laude, "Sapienza" Università di Roma
	Thesis: *Hardy spaces, duality $\mathcal{H}^1 - BMO$ and applications*
	Supervisor: *Prof. A. Pisante*
13 July 2006	**Bachelor degree** in *Mathematics*, 110/110 cum Laude, "Sapienza" Università di Roma
	Thesis: *Variational Solutions for differential inequalities*
	Supervisor: *Prof. L. Orsina*
2003	**High school** leaving certificate at the LGS "Giulio Cesare" in Rome, 100/100.

Fellowships/awards

2013-present	Post doc fellowship at "Sapienza", universitá di Roma
2008	PhD grant at "Sapienza", universitá di Roma
2007	Winner of the "best year degree" prize from Dipartimento di Matematica, "Sapienza" Università di Roma, ranked first
2006	Winner of the "best year student" prize from Dipartimento di Matematica, "Sapienza" Università di Roma, ranked first
2005	Winner of the "best year student" prize from Dipartimento di Matematica, "Sapienza " Università di Roma, ranked first

Research Interests

Keywords	Dispersive equations, in particular:

– *Dirac equation:* Strichartz and local smoothing estimates, potential perturbations, well-posedness for nonlinear models;

– *Variable coefficients equations:* Multiplier method applied to variable coefficients. Quantitative nontrapping assumption. Helmholtz equation and relations with dispersion. Dirac equation on curved space.

– *Invariant measures·* Existence and properties of invariant measures for Dispersive equations.

Publications

F. C.	*Stability of invariant measures and continuity of the KdV flow.*, Bull. Braz. Math. Soc. New series, 47 (1) 1-10.

F. C., A.S. de Suzzoni	*Invariant measures for the Schrödinger equation on the real line*, J. Funct. Anal. 269 (2015) no. 1, 271–324.
F. C., A.S. de Suzzoni	*Continuity of the flow of KdV with regard to the Wasserstein metrics and application to an invariant measure*, J. Differential equations 259 (2015), no. 3, 1024–1067.
F. C.	*Smoothing estimates for variable coefficients Schroedinger equation with electromagnetic potential*, J. Math. Anal. Appl. 402 (2013), pp. 286-296.
F. C., P. D'Ancona	*Endpoint estimates and global existence for the nonlinear Dirac equation with a potential*, J. Differential Equations 254 (2013), pp. 2233-2260.
F. C.	*The cubic nonlinear Dirac equation*, Actes des Journées EDP 2012, Biarritz.
F. C., P. D'Ancona	*Weighted L^p estimates for powers of selfadjoint operators*, Advances in Mathematics 229 (2012), pp. 501-530.
F. C.	*Virial identity and dispersive estimates for the n-dimensional Dirac equation*, J. Math. Sci. Univ. Tokyo 18 (2011), pp. 1-23
F. C.	*Global small solutions to the critical Dirac equation with potential*, Nonlinear Analysis 74 (2011), pp. 6060-6073.

Submitted articles and preprints

F. C., R. Lucá	*Singular integrals with angular integrability, with R. Lucà*, submitted, http://arxiv.org/abs/1509.07999.
F. C., E. Seré	*Local smoothing estimates for the massles Dirac-Coulomb equation*, http://arxiv.org/abs/1503.00945
F. C., P. D'Ancona, R. Lucá	*Helmholtz and dispersive equations with variable coefficients on exterior domains*, submitted, http://arxiv.org/abs/1403.5288.
F. C., A.S. de Suzzoni	*On Gibbs measures and weak flow for the cubic nonlinear Schrödinger equation*, submitted, http://arxiv.org/abs/1403.5288.

Ongoing projects

F. C., P. D'ancona, R. Lucá	*Limiting absorption principles and Sommerfeld condition in the variable coefficients case*.
F. C., A.S. de Suzzoni	*On the dispersive properties of the Dirac equation on curved spaces*.

Scientific responsabilities

- Research projects

2015	Principal investigator of the project "Dinamica dispersiva per l'equazione di Dirac-Coulomb", funded by "Sapienza", universitá di Roma
2014	Principal investigator of the project "Dispersive partial differential equations with variable coefficients", funded by "Sapienza", universitá di Roma
2013	Principal investigator of the project "Static and dynamical aspects of the nonlinear Dirac equation", funded by "Sapienza", universitá di Roma

- Referee activity

- Discrete and continuous dynamical systems - Series A.

- Mathematical Methods in the Applied Sciences.

- Applied mathematics letters

Invited seminars

2015	*"Local smoothing for the Dirac-Coulomb model"*, univ. Paris XIII.
2013	*"Sul metodo del moltiplicatore per equazioni dispersive a coefficienti variabili"*, univ. "Sapienza", Roma.
2013	*"Endpoint Strichartz estimates and the cubic nonlinear Dirac equation"*, IHP, Paris.
2012	*"L'equazione di Dirac cubic-non linear"*, univ. "Sapienza", Roma.
2012	*"Endpoint Strichartz estimates and the cubic nonlinear Dirac equation"*, univ. Cergy-Pontoise, 2012.

Talks in conferences

2014	*"Dispersive estimates for the Dirac equation with potentials"*, Kam and dispersive methods in Hamiltonian PDEs, Milano.
2014	*"Continuity of the KdV flow with respect to Wasserstein metrics"*, HYP 2014, IMPA, Rio de Janeiro.
2014	*"On the multiplier method for variable coefficients dispersive equations"*, Analysis of relativistic and non-relativistic models in quantum mechanics, Rome.

2013	*"On the multiplier method in a variable coefficients setting"*, Linear and nonlinear hyperbolic equations, Pisa.
2012	*"The cubic non linear Dirac equation"*, Journee EDP 2012, Biarritz.
2012	*"The cubic non linear Dirac equation"*, Blow up, dispersion and solitons 2012, Rome

Visiting periods

July-August 2015	Univ. Berkeley (CA), MSRI research membership within the program "New Challenges in PDE: Deterministic Dynamics and Randomness in High and Infinite Dimensional Systems", three weeks.
February-June 2015	Univ. Dauphine, Paris, France (invited by prof. E. Seré), five months.
May-June 2014	HIM Bonn, Germany, invitation for the program "Harmonic analysis and PDEs", two months.
January-March 2014	Univ. Dauphine, Paris, France (invited by prof. E. Seré), three months.
March-July 2013	IHP Paris, France, during the program "Variational and spectral methods in quantum mechanics", three months.

Teaching experiences

A.A. 2015/2016	Assistant for the mathematics course (LUISS universitá di Roma), preparatory lectures for the math course for the architecture department.
A.A. 2014/2015	Tutor of mathematical analysis (Math department, Sapienza Università di Roma), assistant for the mathematics course (LUISS universitá di Roma)
A.A. 2013/2014	Tutor of mathematical analysis (Math department, Sapienza Università di Roma), assistant for the mathematics course (LUISS universitá di Roma); preparatory lecutres for the math course at architecture department.
A.A. 2012/2013	Assistant professor of geometry (Ing. civile, Sapienza Università di Roma), tutor of mathematical analysis (Math department, Sapienza Università di Roma)
A.A. 2011/2012	Tutor of Geometry (Ing. civile, Ing. chimica, Ing. energetica, Ing. informatica e Ing. gestionale, Sapienza Università di Roma); tutor of mathematics (Chimica, Sapienza Università di Roma)
A.A. 2010/2011	Tutor of Geometry (Ing. civile, Ing. chimica e Ing. energetica , Sapienza Università di Roma)
A.A. 2009/2010	Tutor of Geometry (Ing. edile-architettura e Ing. energetica , Sapienza Università di Roma)
A.A. 2008/2009	Tutor of Geometry (Ing. clinica e Ing. energetica , Sapienza Università di Roma)
A.A. 2007/2008	Tutor of Geometry (Ing. edile-architettura, Sapienza Università di Roma)

Languages

Mother tongue	Italian
Other languages	English (very good knowledge), French (basic).