

CURRICULUM VITAE

FORMATO EUROPEO/EUROPEAN FORMAT

PERSONAL INFORMATION

Name, Surname	Roberto Natalini
Address House number, street name, postcode, city, country	Istituto per le Applicazioni del Calcolo "M. Picone" (IAC-CNR) Consiglio Nazionale delle Ricerche via dei Taurini 19, I-00185 – Rome (Italy)
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Website	http://www.iac.rm.cnr.it/~natalini
Nationality	Italian
Place and Date of birth	Rome (Italy) , July 4, 1960

WORK EXPERIENCE

If working for CNR	N. MATRICOLA 14187 DIRECTOR OF INSTITUTE
Dates (from – to)	2014-present Director of the Istituto per le Applicazioni del Calcolo "M. Picone" 1999-2014 Director of research, IAC-CNR. 1998-99 Associated Professore, Dipartimento di Matematica "G. Castelnuovo", Univ. Roma "La Sapienza". 1989-1998 Teaching activities: Univ. L'Aquila, Univ. Roma III. 1988-98 Researcher, IAC-CNR.

[Add separate entries for each relevant post occupied, starting with the most recent.]

EDUCATION AND TRAINING

Dates (from – to)	1986, PhD in Mathematics, Univ. Bordeaux I, France.
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[Add separate entries for each relevant course you have completed, starting with the most recent.]

1984, D.E.A. in Applied Mathematics, Univ. Bordeaux I, France.

1983, Degree in Mathematics, Univ. Roma "La Sapienza", Italy.

RESEARCH ACTIVITIES

Research sectors

1. Qualitative behavior of entropy weak solutions to nonlinear hyperbolic equation with source : decay, blow-up, systems behavior. (1990-1999).
2. Analysis of hydrodynamic models for semiconductors (1993-1999).
3. Numerical methods for hyperbolic and parabolic problems and applications (1994-present).
4. Relaxation problems and singular limits for hyperbolic and diffusive problems (1996-present).
5. Flow in heterogeneous media with application to chemical damage of monuments (1998-present).
6. Numerical methods for pricing financial derivatives (2000-2008).
7. Asymptotic behavior of smooth solutions of hyperbolic systems with dissipative source and numerical issues (2001-present)
8. Finite speed approximations to Navier-Stokes equations and numerical applications (2002-present).
9. Analysis and approximation of traffic flows on networks (2004-present).
10. Models for cell movement (chemotaxis, embryogenesis, biofilms, tissue regeneration) (2005-present).
11. Propagation of intracellular protein signals with application to cancer therapies (2005-present).
12. Mathematical models of evolutionary dynamics (2007-present).

Recent Scientific Activities.

- Modulo INT.P05.001.005 Modelli matematici per la mobilità sostenibile del Progetto INT.P05 Mobilità sostenibile (2008 e 2012-2013).
- Commessa INT.P05.003 - Informatica, ricerca operativa e modelli matematici per la mobilità sostenibile Progetto INT.P05 Mobilità sostenibile (2009-2011).
- MIUR project “Sportello Matematico per l'Industria Italiana”, 2012-2015, <http://sportellomatematico.it>.
- Vittoriano project of the Italian Ministry of Cultural “Modelli matematici per il monitoraggio del danneggiamento delle pietre monumentali del Vittoriano” in collaboration with Istituto Superiore Centrale per il Restauro, 2008-2009, IAC team leader.
- CNR team leader for the CNR PRIN 2009-2011 "Systems of Conservation Laws and Fluid Dynamics: Methods and Applications" (national leader Stefano Bianchini).
- CNR team leader for the Network of Excellence Hycon2 (2011-2013).
- Principal investigator for the Google Research Award 2012 "Multipopulation Models for Vehicular Traffic and Pedestrians".
- Grant with ZEROPIU srl on “Sintesi di un algoritmo predittivo dei flussi di traffico, adattato ad un modello di rilevazione in tempo reale su tecnologie distribuite”, 2012.
- Principal investigator for the PMIUR 2012 project “MATHTECH”, 2013-2014.
- CNR Team leader for the INTOUR project, for the MIUR Call Smart Cities and Communities and Social Innovation, 2014-2016.

1. Denise Aregba-Driollet, Maya Briani, and Roberto Natalini, Time Asymptotic High Order Schemes for Dissipative BGK Hyperbolic Systems. arXiv:1207.6279, to appear in Numer. Math. (2015).
2. R. Natalini, M. Ribot, M. Twarogowska; A numerical comparison between degenerate parabolic and quasilinear hyperbolic models of cell movements under chemotaxis. In press in Journal of Scientific Computing.
3. E. Di Costanzo, R. Natalini, L. Preziosi, A hybrid mathematical model for self-organizing cell migration in the zebrafish lateral line, J. Math. Bio., in press. DOI: 10.1007/s00285-014-0812-9
4. G. Ali, R. Natalini, I. Torricollo, Global existence for a 1D parabolic-elliptic model for chemical aggression in permeable materials, Nonlinear Analysis: Real World Applications, Volume 21, February 2015, Pages 1–12, Available online 20 June 2014: DOI: 10.1016/j.nonrwa.2014.05.006.
5. Notarangelo M. G., Natalini R., Signori E., Gene therapy: the role of cytoskeleton in gene transfer studies based on biology and mathematics. Curr Gene Ther. (2014) ;14(2) :121-7.
6. Clarelli, F.; De Filippo, B.; Natalini, R., A mathematical model of copper corrosion, Appl. Math. Mod. Volume: 38 (2014) 4804-4816.
7. J. Elias, L. Dimitrio, J. Clairambault, R. Natalini, Dynamics of p53 in single cells: physiologically based ODE and reaction-diffusion PDE models, *Phys. Biol.* 11 (2014), 045001.
8. Ján Elias; Luna Dimitrio; Jean Clairambault; Roberto Natalini, The p53 protein and its molecular network: modelling a missing link between DNA damage and cell fate, *Biochimica et Biophysica Acta - Proteins and Proteomics*, Volume:1844, Issue: 1, Special Issue: SI, Pages: 232-247, Part: B, (2014).
9. G.. Bretti, R. Natalini, M. Ribot, A hyperbolic model of chemotaxis on a network: a numerical study, *ESAIM: Mathematical Modelling and Numerical Analysis*, Volume: 48, Issue: 1, Pages: 231-25, DOI:10.1051/m2an/2013098.
10. R. Natalini, M. Ribot, M. Twarogowska.; A well-balanced numerical scheme for a one dimensional quasilinear hyperbolic model of chemotaxis, *Comm. Math. Sci.* 12 (2014), 13-29.
11. M. Briani, G. Germani, E. Iannone. M. Moroni, R. Natalini; Design and Optimization of Reaction Chamber and Detection System in Dynamic Labs-on-Chip for Proteins Detection, *IEEE Transactions on Biomedical Engineering*, 60 (2013), 2161–2166.
12. Luna Dimitrio, Jean Clairambault, Roberto Natalini; A spatial physiological model for p53 intracellular dynamics, *J. Theor. Bio.* v. 316, (2013), 9–24.
13. F. Clarelli, C. Di Russo, R. Natalini and M. Ribot, A fluid dynamics model of the growth of phototrophic biofilms, *J. Math.*

- Biol. 66 (2013), no. 7, 1387—1408.
14. R. Natalini, M. Ribot. Asymptotic High Order Mass-Preserving Schemes for a Hyperbolic Model of Chemotaxis, *SIAM Journal on Numerical Analysis* 50 (2012), pp. 883-905.
 15. A. Amadori, B. Boccabella, R. Natalini. A hyperbolic model of spatial evolutionary game theory. *Comm. Pure Appl. Analysis* 11, (2012), 981 – 1002. doi: 10.3934/cpaa.2012.11.981
 16. Boccabella, Astridh; Natalini, Roberto; Pareschi, Lorenzo. On a continuous mixed strategies model for evolutionary game theory. *Kinet. Relat. Models* 4 (2011), no. 1, 187—213.
 17. A. Cangiani, R. Natalini, A spatial model of cellular molecular trafficking including active transport along microtubules. *Journal of Theoretical Biology*, 267; (2010) p. 614-625, ISSN: 0022-5193, doi: 10.1016/j.jtbi.2010.08.017.
 18. F. Clarelli, R. Natalini, A pressure model of immune response to mycobacterium tuberculosis infection in several space dimensions, *Mathematical Biosciences and Engineering*, Volume: 7 Issue: 2 Pages: 277-300 Published: APR 2010
 19. Anna Lisa Amadori, Astridh Boccabella, Roberto Natalini, A One Dimensional Hyperbolic Model for Evolutionary Game Theory: Numerical Approximations and Simulations, *Communications in Applied and Industrial Mathematics*, 1, 1, (2010) 1–21.
 20. Cristiana Di Russo, Roberto Natalini, Magali Ribot, Global existence of smooth solutions to a two-dimensional hyperbolic model of chemotaxis, *Communications in Applied and Industrial Mathematics*, 1, 1, (2010) 92–109.
 21. C. Mascia, R. Natalini, On Relaxation Hyperbolic Systems violating the Shizuta--Kawashima condition, *Archive for Rational Mechanics and Analysis*, Volume 195, Number 3 / March, 2010, DOI 10.1007/s00205-009-0225-x, Pages 729-762.

ADDITIONAL INFORMATION

Services

- Chair of the Committee for Raising Public Awareness of the European Mathematical Society (2015-2018).
- Founder and main coordinator of the public awareness web site MaddMaths! <http://maddmath.simai.eu> (2009-present)
- Member of the Board and Treasurer of SIMAI (2019-2016).
- Member of the Board of CIMAB (2010-presente).
- Member of the PhD committee Memomat (2002-2011).
- Member of the PhD committee Mathematics Roma Tor Vergata (2012-presente).
- Member of the working group for the reorganization of the Central Administration of CNR (2008-2010).
- Member of the Council of Institute at IAC (2009-2014).
- Participant to the Committee of Institute at IAC (2002-2008).
- Secretary of the Scientific Committe of IAC (1992-1996).

**TRATTAMENTO DEI DATI
PERSONALI, INFORMATIVA E
CONSENSO**

Il D.Lgs. 30/6/2003, n. 196 "*Codice in materia di protezione dei dati personali*" regola il trattamento dei dati personali, con particolare riferimento alla riservatezza, all'identità personale e al diritto di protezione dei dati personali; l'interessato deve essere previamente informato del trattamento .

La norma in considerazione intende come "trattamento" qualunque operazione o complesso di operazioni concernenti la raccolta, la registrazione, l'organizzazione, la conservazione, la consultazione, l'elaborazione, la modifica, la selezione, l'estrazione, il raffronto, l'utilizzo, l'interconnessione, il blocco, la comunicazione, la diffusione, la cancellazione e la distruzione di dati, anche se non registrati in una banca dati.

In relazione a quanto riportato, autorizzo il CNR al trattamento dei dati contenuti nel presente *curriculum vitae* e nella documentazione della quale fa parte integrante

(*barrare la casella*) X **Si, acconsento**