

## CURRICULUM VITAE – GIUSEPPE GAETA

### Titles

- Laurea in Fisica presso l'Università di Roma “La Sapienza”;
- “Habilitation à diriger des recherches” (Physique Théorique) by Université Paris Sud Orsay.

### Professional Curriculum

Giuseppe Gaeta graduated in Physics from Università di Roma “La Sapienza”; he got the “Habilitation à diriger des recherches” (Physique Théorique) from Université Paris Sud Orsay.

He had postdoctoral positions at CRM (Université de Montréal), IHES (Bures sur Yvette), Ecole Polytechnique (Palaiseau), Utrecht University. He was “reader in nonlinear systems” in Loughborough University (GB), and visiting professor at IHES, Universidad Complutense, and Universidad Carlos III de Madrid.

At the time being, he is full professor of Mathematical Physics in Università degli Studi di Milano.

### Publications

At 31/12/2017, he published over 140 papers and research monographs, three books, one textbook, and edited ten volumes of conference proceedings (a list is available on the University system AIR).

#### *Some publications:*

M. Cadoni, R. De Leo and G. Gaeta: “A composite model for DNA torsion dynamics”, *Phys. Rev. E* 75 (2007), 021919

G. Gaeta: “Smooth changes of frame and prolongations of vector fields”, *Int. J. Geom. Meths. Mod. Phys.* 4 (2007), 807-827

G. Gaeta, F.D. Grosshans, J. Scheurle and S. Walcher: “Reduction and reconstruction for symmetric ordinary differential equations”, *J. Diff. Eqs.* 244 (2008), 1810-1839

G. Gaeta and M.A. Rodriguez: “On the physical applications of hyperhamiltonian dynamics”, *J. Phys. A* 41 (2008), 175203 (16pp)

G. Gaeta: “A gauge-theoretic description of mu-prolongations, and mu-symmetries of differential equations”, *J. Geom. Phys.* 59 (2009), 519-539

- G. Gaeta: “Twisted symmetries of differential equations”, *J. Nonlin. Math. Phys.* 16 (2009), S107-S136
- G. Gaeta and G. Cicogna: “Twisted symmetries and integrable systems”, *Int. J. Geom. Meths. Mod. Phys.* 6 (2009), 1305-1321
- G. Gaeta: “Gauge fixing and twisted prolongations”, *J. Phys. A* 44 (2011), 325203 (9 pp)
- G. Gaeta: “Biology, Physics and Nonlinear Science”, *J. Nonlin. Math. Phys.* 18-S2 (2011)
- G. Derks and G. Gaeta: “A minimal model of DNA dynamics in interaction with RNA-Polymerase”, *Physica D* 240 (2011), 1805-1817
- G. Gaeta and M.A. Rodríguez: “Hyperkahler structure of the Taub-NUT metric”, *J. Nonlin. Math. Phys.* 19 (2012), 1250014 (10 pages)
- G. Cicogna, G. Gaeta and S. Walcher: “A generalization of  $\lambda$ -symmetry reduction for systems of ODEs:  $\sigma$ -symmetries”, *J. Phys. A* 45 (2012), 355205 (29pp)
- G. Cicogna, G. Gaeta and S. Walcher: “Dynamical systems and  $\sigma$ -symmetries”, *J. Phys. A* 46 (2013), 235204 (23pp)
- G. Gaeta: “Symmetry and Lie-Frobenius reduction of differential equations”, *J.Phys. A* 48 (2015) 015202
- G. Gaeta and M.A. Rodríguez: “Symmetry and quaternionic integrable systems”, *J. Geom. Phys.* 87 (2015), 134-148
- G. Gaeta and M. Cadoni: “Speed selection for coupled wave equations”, *J. Nonlin. Math. Phys.* 22 (2015), 275-297

### Research interests

(a) *Mathematical Physics*

Symmetry Breaking

Perturbation Theory

Geometry of Differential Equations

Symmetry Methods for Differential Equations

Classical Mechanics and generalizations

(b) *Mathematical Biology*

DNA Nonlinear Dynamics

Evolution