

# *Curriculum Vitae*

of  
Raffaele Vitolo

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## PERSONAL DATA

**Born** 1966, currently living in Lecce, Italy

**Address** Dipartimento di Matematica e Fisica “E. De Giorgi”, Università del Salento, Via per Arnesano, 73100 Lecce, Italy.

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**WWW** <http://poincare.unisalento.it/vitolo/>

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## EDUCATION

1990 Perugia Summer School (by Scuola Matematica Interuniversitaria <http://www.matapp.unimib.it/smi/>);

1991 Degree in Mathematics: Università di Camerino, 1991

1991 Cortona Summer School (by Scuola Matematica Interuniversitaria <http://www.matapp.unimib.it/smi/>);

1994 Ravello Summer School (by GNFM of Istituto Nazionale di Alta Matematica, <http://www.altamatematica.it/>)

1996 Ravello Summer School (by GNFM of Istituto Nazionale di Alta Matematica, <http://www.altamatematica.it/>)

1996 Ph.D. in Mathematics Università di Firenze, 1996.

1998 ‘Diffiety School’ (courses by A.M. Vinogradov, Un. Salerno, and I.S. Krasil’shchik, Independent Univ. of Moscow), on the geometry of PDE, Forino (AV, Italy)

1998 ‘Homological methods in PDE’ (courses by I.S. Krasil’shchik and A.M. Verbovetsky, Un. Mosca), Levoča (Slovakia).

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## CAREER

1990-1991 Consiglio Nazionale delle Ricerche (<http://www.cnr.it>) fellowship for graduate students;

1991-1995	Ph.D. fellowship, University of Florence;
1996-1997	Istituto Nazionale di Alta Matematica ( <a href="http://www.altamatematica.it/">http://www.altamatematica.it/</a> ) research fellow;
1997	Foundation ‘F. Severi’ fellowship.
1997-1998	Post-doc fellowship, University of Florence;
1998-2003	Assistant professor (‘ricercatore’) in ‘Geometria’ at the Dipartimento di Matematica ‘E. De Giorgi’ of the Università di Lecce from 1/5/1998 to 19/12/2003.
2003-2008	Associate professor in ‘Geometria’ at the Dipartimento di Matematica ‘E. De Giorgi’ of the Università del Salento (formerly known as Università di Lecce) from 20/12/2003;
2008-present	Associate professor in ‘Fisica Matematica’ at the Dipartimento di Matematica ‘E. De Giorgi’ (since 2012 Dipartimento di Matematica e Fisica ‘E. De Giorgi’) of the Università del Salento.

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## AFFILIATIONS

1994-2001	Member of the section Gruppo Nazionale di Fisica Matematica of the Istituto Nazionale di Alta Matematica, <a href="http://www.altamatematica.it/">http://www.altamatematica.it/</a> .
2002-2008	Member of the section Gruppo Nazionale di Geometria Algebrica e Strutture Algebriche of the Istituto Nazionale di Alta Matematica, <a href="http://www.altamatematica.it/">http://www.altamatematica.it/</a> .
2008-today	Member of the section Gruppo Nazionale di Fisica Matematica of the Istituto Nazionale di Alta Matematica, <a href="http://www.altamatematica.it/">http://www.altamatematica.it/</a> .
2016-present	Associate member of the Istituto Nazionale di Fisica Nucleare, branch of Lecce, <a href="http://www.infn.it/">http://www.infn.it/</a> .

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## RESEARCH ACTIVITY

### RESEARCH INTERESTS: GEOMETRIC METHODS IN MATHEMATICAL PHYSICS

- **Integrable systems:** Hamiltonian formalism for PDEs [22a, 25a, 26a, 13c, 29a, 33a, 34a, 37a, 38a, 40a], differential equations which are uniquely characterized by their symmetry group [16a, 17a, 9c, 10c, 11c, 15c, 30a], generalized symmetries and applications [32a, 35a, 36a]. I contribute to the contents of the website <http://gdeq.org/>,

which is a community of researchers who are interested in geometry and differential equations. I developed software for the research of integrability operators (Hamiltonian, symplectic and recursion operators) [1f, 2f]. Together with A.C. Norman I wrote a technical manual on REDUCE internals and programming [3f].

- **Classical and quantum mechanics:** spherically symmetric solutions in Galilei relativity [2a], existence and classification of quantizations [4a, 7a, 3c], covariant symmetries in mechanics [2c, 8a, 15a, 28a], classical and quantum mechanics of the rigid body [18a, 19a, 5c], covariant quantization and geometric quantization [6c, 31a, 39a]. I recently published a paper of historical interest on an early contribution of Levi-Civita to the correspondence between symmetries and conserved quantities [27a].
- **Geometry of calculus of variations:** I have studied variational sequences, on which I published a chapter of the *Handbook of Global Analysis* [2b]. These are exact sequences of spaces of differential forms on jets where one of the morphisms of the sequence is the Euler–Lagrange operator. In particular I devoted myself to variational sequences of finite order [3a, 5a, 6a, 9a, 10a, 11a, 12a, 13a, 14a, 15a, 20a, 1c, 4c, 7c, 12c, Ph.D. Thesis] and to variational multivectors, which are duals to forms in the variational sequence [8c, 22a, 13c, 29a].
- **Classical field theory:** covariant Lagrangians for Einstein–Yang–Mills equations [1a, 1b], inverse problem for Yang–Mills equations [21a].

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## SCHOOLS

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| 2000 | Organizer of the ‘IV Diffiety School’ (directed by A.M. Vinogradov, Un. Salerno), on the geometry of PDE, Forino (AV, Italy), <a href="http://diffiety.ac.ru">http://diffiety.ac.ru</a> ;  |
| 2005 | I organized the school <i>Introduction to variational sequences</i> (lecturer D. Krupka, Un. of Olomouc, Czech Rep.) at the ‘Centro E. De Giorgi’, Lizzanello (Lecce, Italy), under the auspices of the Centro di ricerche matematiche ‘E. De Giorgi’, <a href="http://www.crm.sns.it/">http://www.crm.sns.it/</a> , from 5 to 9 April 2005. |
| 2006 | ‘Summer School in Global Analysis’, organized by D. Krupka (Un. Olomouc, Czech Rep.) and J. Brajerčík (Un. of Prešov, Slovak Rep.) from 30 July to 5 August 2006 in Spišská Stara Ves (Slovak Rep.), Satellite conference of the ICM conference of Madrid (2006). I delivered a course on “Variational sequences on jets of submanifolds”.   |
| 2012 | “The first Summer School on the Geometry of Differential Equations”, organized by the Institute of Mathematics of Silesian University in Opava, Czech Republic (17–21 September 2012). I delivered a course on “Symmetries of Partial Differential Equations”.   |

2013 “The second Summer School on the Geometry of Differential Equations”, organized by the Institute of Mathematics of Silesian University in Opava, Czech Republic (09–14 September 2013). I delivered a course on “Conservation laws of Partial Differential Equations”.

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#### VISITING OTHER UNIVERSITIES

Nov 1994 Un. of Salamanca, Spain

Feb 1995 Silesian University in Opava, Czech Rep. (I delivered a seminar);

Apr 1997 Silesian University in Opava, Czech Rep. (I delivered a seminar)

Apr 1997 Masaryk University of Brno, Czech Rep.(I delivered a seminar)

Feb 2000 Independent University of Moscow <http://ium.mccme.ru/english/>

Apr 2001 Independent University of Moscow (I delivered a seminar)

Jun 2002 University of Twente, NL

Apr 2003 Independent University of Moscow

Apr 2004 Un. Roma “La Sapienza” (I delivered a seminar)

Apr 2007 Independent University of Moscow

Nov 2007 University of Olomouc (Czech Rep.)

Feb 2008 Independent University of Moscow (I delivered a seminar)

May 2008 Independent University of Moscow (I delivered a seminar)

Jul 2008 Un. of Salamanca, Spain

Nov 2008 Masaryk University of Brno, Czech Rep. (I delivered a seminar)

Mar 2009 Independent University of Moscow (I delivered a seminar)

Sep 2009 University of Salamanca, Spain

Dec 2009 Independent University of Moscow (I delivered a seminar)

Lug 2010 University of Salamanca, Spain

Gen 2011 Independent University of Moscow

Apr 2011 Independent University of Moscow (I delivered a seminar)

Oct 2011	Università di Perugia
Nov 2011	Independent University of Moscow (I delivered a seminar)
Apr 2012	Independent University of Moscow
Sep 2012	Silesian Un. of Opava (Czech Rep.)
Mar 2013	SISSA, Trieste, Italy (I delivered a seminar).
Jul 2013	Rome, Italy (I delivered a seminar).
Sep 2013 – Jan 2014	I spent the semester at the Loughborough University, UK, where I cooperated with Prof. E. V. Ferapontov. I delivered two seminars at the Department of Mathematics.
Nov 2013	University of Leeds (I delivered a seminar).
Jan 2014	Imperial College (London, UK) (I delivered a seminar).
Feb 2014	Independent University of Moscow.
Jul 2014	Loughborough University.
Dec 2014	Silesian Univ. in Opava, Czech Rep. (I delivered a seminar).
Feb 2015	SISSA, Trieste, Italy (ho tenuto un seminario).
Feb 2015	Moscow, Russia. Ho tenuto un seminario presso il gruppo di ricerca di S.P. Novikov e V.I. Buchstaber, all'Università Statale di Mosca "Lomonosov", e un seminario presso l'Università Indipendente di Mosca .
Mar 2015	Università di Roma 'La Sapienza'.
Mag 2015	Loughborough University.
Jul 2015	Universidad de Salamanca (I delivered a seminar).
Nov 2015	Loughborough University and University of Leeds (I delivered a seminar). Invited by Prof. E.V. Ferapontov by a grant of the London Mathematical Society.
Mag 2016	Università di Milano Bicocca.
Lug 2016	University of Leeds.
Dic 2016	Independent University of Moscow (I delivered a seminar).
Feb 2017	Università di Perugia.
Feb 2017	Independent University of Moscow (I delivered a seminar).
1998-today	many short stays and seminars in the universities of Florence, Turin, Messina.

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## CONFERENCES AS A SPEAKER

- 1995            Diff. Geom. and its Appl. VI, Brno
- 1996            Diff. Geom., Budapest
- 1996            XII Italian Conf. on Gen. Rel. and Grav. Phys., Rome
- 1997            New Ital. Contributions to Diff. Geom, Bari 1997
- 1998            (invited speaker) Diff. Geom. and its Appl. VII, Brno
- 1998            XIII Italian Conf. on Gen. Rel. and Grav. Phys., Bari
- 1999            (invited speaker) Multisymplectic Field Theory and its Appl., Salamanca
- 2001            (invited speaker) Diff. Geom. and its Appl. VIII, Opava, Czech Rep.
- 2002            (also as an organizer) Current Geometry, Napoli
- 2002            (also as an organizer) Simmetrie ed Equazioni Differenziali: aspetti teorici ed applicativi, Lecce (Italy) 5-7 February 2004.
- 2004            (invited speaker) Diff. Geom. and its Appl. IX, Praga 2004.
- 2006            (invited speaker) Workshop on Geometry and Symmetry of Differential Equations, S. Marinella (Roma), 2006.
- 2007            (invited speaker) Diff. Geom. and its Appl. X, Olomouc (Czech Rep.) 2007 <http://dga2007.upol.cz/>.
- 2008            (invited speaker) Abel Symposium, Tromso (Norway) 2008 <http://abelsymposium.no/2008>.
- 2010            (invited speaker) Geometry and Symmetry of Differential Equations, S. Marinella (Roma), 2010.
- 2010            Nonlinear Physics VI, Gallipoli 2010.
- 2010            (invited speaker) Workshop on Geometry of Differential Equations and Integrability, October 2010 [http://gdeq.org/Workshop\\_on\\_Geometry\\_of\\_Differential\\_Equations\\_and\\_Integrability](http://gdeq.org/Workshop_on_Geometry_of_Differential_Equations_and_Integrability).
- 2011            (also as an organizer) Waves and Stability in Continuous Media, Brindisi 2011 <http://wascom.matematica.unisalento.it>
- 2012            (invited speaker) Assemblea Scientifica GNFM 2012 Montecatini Terme, 4-6 Ottobre 2012 (see <http://www.altamatematica.it/gnfm/node/20>)

- 2013 (also as an organizer) “Geometry and Quantum Theories” in honour of L. Mangiarotti and M. Modugno, Florence 10–11 June 2013 (see [http://www.dma.unifi.it/~meeting\\_june\\_2013/home/home.html](http://www.dma.unifi.it/~meeting_june_2013/home/home.html))
- 2014 (invited speaker) Symmetry and perturbation Theory, Cala Gonone (Italy), giugno 2014, <http://www.sptspt.it/>.
- 2014 (invited speaker) Workshop on Integrable Systems, Milano Bicocca, June 2014. <http://www.matapp.unimib.it/~lorenzoni/Workshop/>.
- 2015 (invited speaker) Mini-Workshop on Integrable Equations, Independent University of Moscow, Moscow, Russia, February 2015 [http://gdeq.org/Mini-Workshop\\_on\\_Integrable\\_Equations](http://gdeq.org/Mini-Workshop_on_Integrable_Equations)
- 2015 (also as an organizer) Workshop on Integrable Nonlinear Equations, Mikulov (Czech Republic), October 2015 [http://gdeq.org/Workshop\\_on\\_Integrable\\_Nonlinear\\_Equations](http://gdeq.org/Workshop_on_Integrable_Nonlinear_Equations)
- 2016 (invited speaker) London Mathematical Society – EPSRC Durham Symposium: Geometric and Algebraic aspects of Integrability, <http://www.maths.dur.ac.uk/lms/105/index.html>, 25 July – 3 August 2016, Durham Univ., UK.
- 2017 (invited speaker) Dynamics in Siberia, 26 February – 4 March 2017, Sobolev Mathematical Institute, Akademgorodok – Novosibirsk (Russia). <http://www.math.nsc.ru/conference/ds/2017/index.html>
- 2017 Scientific Gruppo Nazionale di Fisica Matematica, Montecatini, 4–6 maggio 2017. <http://www.altamatematica.it/gnfm/it/node/20>

## CONFERENCES AS AN ORGANIZER

- 2000-2003 I participated to the organization of the series of four conferences *Current Geometry* (under the supervision of A.M. Vinogradov, Un. Salerno, and in cooperation with ‘Istituto Italiano per gli Studi Filosofici, GNSAGA of the Istituto Nazionale di Alta Matematica, Università di Napoli), see <http://diffiety.ac.ru> for details.
- 2004 I organized the meeting *Simmetrie ed Equazioni Differenziali: aspetti teorici ed applicativi* in Lecce (Italy) from 5 to 7 February 2004.
- 2007 I was the local organizer of the VI conference *Symmetry and perturbation theory*, Otranto 2–9 June 2007; see <http://www.sptspt.it/>.

- 2011 I was the local organizer of the VII conferece *Symmetry and perturbation theory*, held in Otranto from 5 to 12 June 2011, see <http://www.sptspt.it/>.
- 2011 I was the chairman of the local organizing committee of the XVI conference *Waves and Stability in Continuous Media*, held in Brindisi from 12 to 18 June 2011 <http://wascom.matematica.unisalento.it/>.
- 2013 I was one of the organizers of the meeting “Geometry and Quantum Theories” in honour of L. Mangiarotti and M. Modugno, Florence 10–11 June 2013 (see [http://www.dma.unifi.it/~meeting\\_june\\_2013/home/home.html](http://www.dma.unifi.it/~meeting_june_2013/home/home.html))
- 2013 I was one of the organizers of the conference “Physics and Mathematics of Nonlinear Phenomena”, held in Gallipoli (Italy) 22–29/07/2013.
- 2015 I was one of the organizers of the conference “Physics and Mathematics of Nonlinear Phenomena”, held in Gallipoli (Italy) Gallipoli, 20–27 June 2015 <http://pmpn.unisalento.it>
- 2015 I was one of the organizers of the conference Workshop on Integrable Nonlinear Equations, Mikulov (Czech Republic), October 2015 [http://gdeq.org/Workshop\\_on\\_Integrable\\_Nonlinear\\_Equations](http://gdeq.org/Workshop_on_Integrable_Nonlinear_Equations)
- 2017 I am one of the organizers of the conference Physics and Mathematics of Nonlinear Phenomena: 50 years of Inverse Scattering Transform, Gallipoli, 17–24 giugno 2017 <http://pmpn.unisalento.it>

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## RESEARCH ADVISOR

- 2003–2008 Dr. G. Manno, with a degree in Mathematics at the Università di Napoli ‘Federico II’ and Ph.D. at King’s College, was a De Giorgi Fellow and has been a Research Fellow, both under my supervision.
- 2009–2010 Tutor of the Ph.D. student R. De Pascalis, Ph.D. in Mathematics, Università del Salento.
- 2009–2011 Tutor of a Research Fellow in Fisica Matematica, Dott. Luigi Vergori, Dipartimento di Matematica, Università del Salento.

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## EDITORIAL ACTIVITY.

I have been a referee for the following journals: *Acta Applicandae Mathematicae*, *Archivum Mathematicum* (Brno), *Central European Journal of Mathematics*, *Czechoslovak Mathemat-*



ical Journal, Demonstratio Mathematica, Differential Geometry and its Applications, Classical and Quantum Gravity, European Journal of Physics, International Journal of Geometric Methods in Modern Physics, International Journal of Non-Linear Mechanics, Journal of Geometry and Physics, Journal of Mathematical Physics, Journal of Nonlinear Mathematical Physics, Journal of Physics A: math. theor., Mathematical Proceedings of the Cambridge Philosophical Society, Nonlinear Analysis Series A: Theory, Methods & Applications, Note di Matematica, Physics Letters A, Proceedings of the Royal Society A, Proceedings of the Royal Society of Edinburgh, Real Academia de Ciencias (Spagna), Reports on Mathematical Physics, SIGMA.

I have been a reviewer for MathSciNet (AMS) and Zentralblatt (EMS).

## GRANTS

### FUNDED RESEARCH PROJECTS

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|------------|---|
| 1998-today | My research activity was continuously supported mostly by the Dipartimento di Matematica of the Università del Salento.   |
| 1999       | Grant from GNFM for a one-month visiting professor (A.M. Verbovetsky, Indep. Un. Moscow)  |
| 1999       | Progetto Giovani Ricercatori (grant issued at a national level with calls in all state universities), Prot. 326/UPSG/99 Università di Lecce.  |
| 2001       | <i>Formalismo hamiltoniano in teoria dei campi</i> , national call issued by GNFM, I was the responsible (the project involved 4 researchers).  |
| 2003-2005  | <i>Sistemi integrabili, teorie classiche e quantistiche</i> , PRIN03, member (Progetto di Ricerca di Interesse Nazionale, see <a href="http://prin.miur.it">http://prin.miur.it</a> )   |
| 2005       | Grant from GNSAGA of INdAM (see <a href="http://www.altamatematica.it">http://www.altamatematica.it</a> ) for a one-month visiting professor (A.M. Verbovetsky, Indep. Un. Moscow)  |
| 2005-2007  | <i>Simmetrie e Supersimmetrie Classiche e Quantistiche</i> PRIN05, member (Progetto di Ricerca di Interesse Nazionale, see <a href="http://prin.miur.it">http://prin.miur.it</a> )  |
| 2007       | Grant from GNSAGA of INdAM (see <a href="http://www.altamatematica.it">http://www.altamatematica.it</a> ) for a one-month visiting professor (J. Pohjanpelto, Oregon State Un.)   |
| 2007-2008  | Russian Foundation for Basic Research - EINSTEIN Consortium project “Hamiltonian formalism for nonlinear differential equations and nonlocal aspects of integrability”, I was the team leader on the Italian side.            |
| 2008       | Responsabile Scientifico for the Università del Salento of the Progetto Sud-Est, PON Ricerca scientifica, sviluppo tecnologico, alta formazione 2000-2006 Asse III - Sviluppo del capitale umano di eccellenza Misura III.5 - |

Adeguamento del sistema della formazione professionale, dell'istruzione e dell'alta formazione - Azione Orientamento, Avviso n. 2269/2005, Linea di intervento b. I administered a budget of 400.000EUR.

- 2009-2010 Russian Foundation for Basic Research - EINSTEIN Consortium project "Development and application of homological methods in the theory of integrable systems", I was the team leader on the Italian side.
- 2010 GNFM: stay at the Department of Mathematics, University of Salamanca (10 days).
- 2010 GNFM: visiting professor, 8 days (J. Janyska, Masaryk University, Brno, Czech Republic).
- 2011 GNFM: visiting professor, 15 days (J. Krasil'shchik, Independent University of Moscow).
- 2011 VII conference SPT - 5000EUR grant from Università del Salento through funds from Monte dei Paschi di Siena, and 2500EUR grant from GNFM.
- 2011 XVI conference WASCOM - 15000EUR grant from Facoltà di Ingegneria Industriale (sede di Brindisi), Università del Salento, and 5000EUR grant from Università del Salento through funds from Monte dei Paschi di Siena.
- 2012 Conference "Physics and Mathematics of Nonlinear Phenomena", see <http://pmp2013.dmf.unisalento.it/>, 5000EUR grant from Università del Salento and 3000EUR from the Dipartimento di Matematica e Fisica of the Università del Salento.
- 2013-2015 PRIN MIUR 2010-2011 (see <http://prin.miur.it/>) "Teorie geometriche e analitiche dei sistemi Hamiltoniani in dimensioni finite e infinite", Scientific Head: B.A. Dubrovin, I'm a member of the Unit in the Università del Salento, headed by B.G. Konopelchenko.
- 2013 GNFM: visiting professor M.V. Pavlov, Lebedev Inst. of Theoretical Physics (Moscow), 30 days 2500EUR (invitation shared with Prof. N. Manganaro, Un. Messina).
- 2014 GNFM: visiting professor M.V. Pavlov, Lebedev Inst. of Theoretical Physics (Moscow), 15 days 1500EUR.
- 2015 GNFM: visiting professor E.V. Ferapontov, Loughborough University (UK), 15 days 2000EUR.
- 2015 London Mathematical Society Visitors Grant (Scheme 2), 970£. Visit to Loughborough (prof. E.V. Ferapontov), Leeds (prof. A. Fordy), November 2015.

2016 GNFM: contribution of 300EUR for travel expenses for the academic visit at the University of Leeds (Prof. A. Fordy) and the participation as an invited speaker to the conference London Mathematical Society – EPSRC Durham Symposium: Geometric and Algebraic aspects of Integrability, <http://www.maths.dur.ac.uk/lms/105/index.html>, 25 July – 3 August 2016, Durham Univ., UK.

#### REFEREEING GRANT PROPOSALS

2010-present Referee for research projects of young researchers in different Universities in the European Union.

2015 Referee for the Scientific Independence of young Researchers grant of the Italian Ministero dell’Istruzione, Università e Ricerca.

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#### TEACHING ACTIVITY

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##### COURSES (AS A TEACHER)

2000-2001 Temporary teacher in Geometry and Algebra, Information Engineering, Un. Lecce

2002-2003 Temporary teacher in Geometry and Algebra, Management Engineering, Un. Lecce

2004-2005 Course of **Matrix Computations**, Master in Automation, Communication, Information engineering Un. Lecce

2004-2008 Courses of **Geometry and Algebra**, Bachelor in Information Engineering Un. Lecce

2006-2013 Courses of **Geometry and Algebra**, Bachelor in Management and Industrial Engineering Un. Lecce

2006-2008 Course of **Numerical Analysis**, Master in Aerospace Engineering Un. Lecce

2006-2008 Courses of **Laboratory of Numerical Analysis**, Master in Aerospace Engineering Un. Lecce

2007-present Course of **Mathematical Methods for Aerospace Engineering with Laboratory**, Master in Aerospace Engineering Un. Lecce

2013-2014 Course **Mathematical Physics**, Bachelor in Mathematics, Un. Salento.

2014-2015 Course **Rational Mechanics**, Bachelor in Civil Engineering, Un. Salento.

- 2014-present Course **Rational Mechanics**, Bachelor in Industrial Engineering, Un. Salento.
- 2016-present Course **Mathematical Physics**, Master in Mathematics, Un. Salento.
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### COURSES (AS AN ASSISTANT TEACHER)

- 1996-1997 Electronic Engineering Un. Firenze (course: ‘Geometria’)
- 1998-1999 Information Engineering and Materials Engineering Un. Lecce (course ‘Geometria ed Algebra’ like the next ones)
- 1999-2005 Information Engineering and Materials Engineering Un. Lecce
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### COURSE NOTES

- 2001 G. DE CECCO, R. VITOLO: Note di Geometria ed Algebra, 110 pages, Università di Lecce
- 2001 G. CALVARUSO, R. VITOLO: Esercizi di Geometria ed Algebra Lineare, 110 pages, Università di Lecce
- 2005 G. DE CECCO, R. VITOLO: Note di Calcolo Matriciale, 160 pages, Università di Lecce
- 2006 R. VITOLO: Manuale di preparazione ai test di autovalutazione, 50 pages, Università di Lecce
- 2008 R. VITOLO: Introduzione a OCTAVE
- 2008 R. VITOLO: Introduzione a MAXIMA
- 2012 R. CHIRIVÌ, R. VITOLO: Geometria ed Algebra, 105 pages, Università di Lecce
- Note** The notes are all in Italian; they are available at my web page <http://poincare.unile.it/vitolo/>
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### ADVISOR OF DEGREE THESIS, UN. LECCE – SALENTO

- 1999 M.G. Petrelli, ‘Exterior algebra and direct sum’, master degree in Mathematics.

2002	V. Cagnazzo, ‘Geometry of jets of submanifolds and applications’, master degree in Mathematics.
2003	A.B. Barone, ‘Cohomology of manifolds through Mayer-Vietoris sequence’, master degree in Mathematics.
2005	M.L. Colagiorgio (co-advisor), ‘Symmetries of Ordinary Differential Equations’, master degree in Mathematics.
2013	S. Quaranta, ‘Geometria delle equazioni differenziali ed applicazioni’ (co-advisor), master degree in Mathematics.
2010-present	Co-advisor of many degree thesis in Engineering.

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## PHD SCHOOLS

2003	Ph.D. course of 30 hours at the Ph. D. in Mathematics, Univ. Lecce, about <i>Lie groups and symmetries of PDE</i> .
2005-2007	Member of the advisory board of Ph.D. in Information Engineering (Department of Innovation Engineering), Univ. Lecce.
2007-2013	Member of the advisory board of Ph.D. in Mathematics (Department of Mathematics), University of Salento.
2009	Member of the committee for the final exam, Ph.D. in Mathematics, Università di Torino.
2011	President of the committee for the final exam, Ph.D. in Mathematics, Università di Messina.
2012	Member of the committee for the final exam, Ph.D. in Mathematics, Università di Torino.
2015	Member of the committee for the admittance exam, Ph.D. in Mathematics, Univ. del Salento e della Basilicata.
2013-2017	Member of the advisory board of the Ph.D. in Mathematics (consortium between the Università del Salento and the Università degli Studi della Basilicata).

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## ADMINISTRATIVE ACTIVITY IN THE UNIVERSITÀ DEL SALENTO

2010 - 2012	Vicedirector of the Dipartimento di Matematica.
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- 2010 - 2016 Member of the board of directors of the Centro Servizi Grandi Progetti, that manages all projects whose budget comes from external funds (EU, national, regional and private) of the Università del Salento.
- 2009 - 2011 Vicepresident of the Council of teachers at the Master degree in Aerospace Engineering, Università del Salento.
- 2004 - today Responsible of typesetting of the journal *Note di Matematica*, edited by the Dipartimento di Matematica of the Università del Salento <http://siba-ese.unile.it/index.php/notemat>.
- 2016 - today Vicedirector of the Dipartimento di Matematica e Fisica, Un. Salento.

## OTHER COURSES

- 2002-2009 I delivered the course *Laboratory for multimedia in teaching mathematics* (20 hours on L<sup>A</sup>T<sub>E</sub>X, Octave, Maxima) for which I developed course notes (see above) at the Dipartimento di Matematica of the Università di Lecce for the State School for the Qualification of High School Teachers; 20 hours in each academic year.
- 2007-2008 I delivered the course *Innovative technologies for teaching/learning mathematics* at the State School for the Qualification of Teachers in High Schools in Bari (30 hours).
- 2013 I delivered a module “Matematica 2” within the Course ITS “Higher technician for production and maintenance of means of transport and their infrastructures” (25 hours).
- 2016 I delivered a module “Matematica 2” within the Course ITS “Higher technician for production and maintenance of means of transport and their infrastructures” (25 hours).

## INTERESTS IN COMPUTER SCIENCE

- L<sup>A</sup>T<sub>E</sub>X I have a good knowledge of T<sub>E</sub>X/L<sup>A</sup>T<sub>E</sub>X. I was (up to 2014) in the editorial board of the italian journal of T<sub>E</sub>X/L<sup>A</sup>T<sub>E</sub>X, ArsT<sub>E</sub>Xnica, published by the Gruppo Utenti Italiani T<sub>E</sub>X/L<sup>A</sup>T<sub>E</sub>X(GUIT). I wrote the style files for ‘Note di Matematica’, a mathematical journal published by the Dipartimento di Matematica, Università del Salento, see <http://siba2.unile.it/notemat>.
- Linux I’m interested in Linux and Free Software, I am a member of SaLUG!, the Salento GNU/Linux Users Group (<http://salug.it>).

Reduce            I am one of the developers and the maintainer of CDIFF and CDE, REDUCE packages for the research of integrability structure for differential equations, <http://gdeq.org/Category:Software>. REDUCE is a LISP-based Computer Algebra System developed since the Sixties, now free software, see <http://reduce-algebra.sourceforge.net/>.

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## LANGUAGE ABILITIES

Italian            mother tongue.

English            level C1 self-assessed. I worked for 6 months in UK and I delivered several seminars in UK universities.

Spanish            level B2 self-assessed. I worked for some months altogether in Spain, mostly in Salamanca, where I also delivered seminars in Spanish.

French             I have a good understanding of written texts, and I have basic abilities of conversation.

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## POPULARIZATION OF SCIENCE

I wrote the paper [1e] for the philosophy journal of the Università del Salento, where I described the problem of finding the topology of the universe.

In cooperation with F. Paparella I wrote the paper [2e] on numerical computations with OCTAVE, which is a MATLAB emulator. This paper comes from our teaching experience of using the program in courses for engineers or applied mathematicians.

Lecce, May 10, 2017

Raffaele Vitolo

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## PUBLICATIONS BY R. VITOLO

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### PAPERS ON JOURNALS

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- [15a] G. MANNO, R. VITOLO: *Relativistic mechanics, contact manifolds and symmetries*, Note di Matematica **23**, n. 2 (2004/2005), 157–171.
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## EDITORIAL ACTIVITY

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  - [3e] S. RIONERO, T. RUGGERI, G. SACCOMANDI, R. VITOLO: Special volume of Note di Matematica in occasion of the XVI conference Waves and Stability in Continuous Media, Brindisi (Italy), 12/6–18/6/2011. Vol. **32** n. 1 (2012).
  - [4e] S. RIONERO, T. RUGGERI, G. SACCOMANDI, R. VITOLO Special volume of Acta Applicandae Mathematicae in occasion of the XVI conference Waves and Stability in Continuous Media, Brindisi (Italy), 12/6–18/6/2011. Vol. **122** n. 1 (2012).
  - [5e] B. KONOPELCHENKO, G. LANDOLFI, L. MARTINA, R. VITOLO, Physics and Mathematics of Nonlinear Phenomena 2013 (PMNP2013) 22-29 June 2013, Gallipoli, Italy. Journal of Physics: Conference Series **482**, IOP Publishing 2014 (47 papers) <http://iopscience.iop.org/1742-6596/482/1>.
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  - [2f] R. VITOLO: *CDE: a REDUCE package for integrability of PDEs*, software, user guide and examples, freely available at <http://gdeq.org/Category:Software>, version 1.0 (2014), version 2.0 (2015).
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## GENERAL PUBLICATIONS

- [1g] R. VITOLO: *La forma dell'Universo*, Idee (Journal of Philosophy of the University of Lecce, Milella publ.) **61** (2006), 53–59 (in Italian).

- [2g] F. PAPARELLA, R. VITOLO: *Analisi numerica con GNU Octave*, Linux & C. (Italian magazine on Linux and Free Software) **52** (2006), 44–49 (in Italian).
- [3g] G. SACCOMANDI, R. VITOLO: *La mobilità accademica nella proposta di riforma*, paper on the news website [lavoce.info](http://www.lavoce.info/archives/26622/la-mobilita-accademica-nella-proposta-di-riforma/), 25 November 2010, <http://www.lavoce.info/archives/26622/la-mobilita-accademica-nella-proposta-di-riforma/>

Lecce, May 10, 2017

Raffaele Vitolo