



TO MAGNIFICO RETTORE OF UNIVERSITA' DEGLI STUDI DI MILANO

ID CODE 6680

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at **Dipartimento di Matematica "Federigo Enriques"**

Scientist in charge: **Giorgio Gubbiotti**

Danilo Latini

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	Latini
Name	Danilo

PRESENT OCCUPATION

Appointment	Structure
-	-

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Bachelor Degree	Physics	Sapienza University of Rome	2011
Master Degree	Physics	Sapienza University of Rome	2013
PhD	Physics	Roma Tre University	2017

FOREIGN LANGUAGES

Languages	level of knowledge
English	Advanced



AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2020	IOP Trusted Reviewer. Issued by IOP Publishing
2019	IOP Outstanding Reviewer (Journal of Physics A: Mathematical and Theoretical). Issued by IOP Publishing
2014-2017	PhD scholarship Roma Tre University

TRAINING OR RESEARCH ACTIVITY

Description of activity
<ul style="list-style-type: none">• Postdoctoral Research Fellow. School of Mathematics and Physics, The University of Queensland, Brisbane, Australia (2021-2023)• Teaching Assistant course Analysis 1. Mathematics and Physics Department, Roma Tre University, Rome, Italy (2018-2019)• Visitor (10 months). Mathematics and Physics Department, Roma Tre University, Rome, Italy (2018-2019)• Visiting PhD student (3 months). CBPF (Centro Brasileiro de Pesquisas Físicas), Rio de Janeiro, Brazil (2015)• PhD Student. Mathematics and Physics Department, Roma Tre University, Rome, Italy (2014-2017) <p>Research Interests: Integrable and superintegrable (classical and quantum) systems and related algebraic structures. Lie and polynomial algebras, in particular their application to physical models. Exactly and quasi-exactly solvable models. Coalgebra symmetry approach to superintegrability. Approach of commutants of subalgebras in universal enveloping algebras for integrability/superintegrability. Factorisation techniques in classical and quantum mechanics. Supersymmetric Quantum Mechanics (SUSYQM). Discrete Quantum Mechanics.</p>

PROJECT ACTIVITY

Year	Project
2021-2023	Australian Research Council discovery project DP190101529 “From superintegrability to quasi-exact solvability: theory and application”. Supported by ARC, Australia.
2014-2017	INFN IS-CSN4 “Mathematical methods of nonlinear Physics”. Supported by INFN, Italy.
2014-2017	National Research Projects (PRIN) 2010-2011 “Geometric and analytic theory of Hamiltonian systems in finite and infinite dimensions”. Supported by MIUR, Italy



CONGRESSES AND SEMINARS

Date	Title	Place
July 18-22 2022	XXXIV International Colloquium on Group Theoretical Methods in Physics	Strasbourg, France (Online attendance)
May 23-27 2022	Symmetry for group action in differential geometry	Creswick, Australia
February 14-18 2022	MATRIX-SMRI Symposium: Nijenhuis Geometry and Integrable systems	Creswick, Australia (Online attendance)
February 9-11 2022	The 2022 ANZAMP Meeting	Australia (Online Meeting)
June 25 - August 04 2016	London Mathematical Society - EPSRC Durham Symposium Geometric and Algebraic Aspects of Integrability	Durham, England
June 14-18 2016	Integrable Systems and Quantum Symmetries (ISQS)	Prague, Czech Republic
September 08-12 2014	Conceptual and Technical Challenges for Quantum Gravity	Rome, Italy

PUBLICATIONS

Articles in reviews
R. Campoamor-Stursberg, D. Latini, I. Marquette, J. Zhang and Y.-Z. Zhang, "Superintegrable systems associated to commutants of Cartan subalgebras in enveloping algebras". arXiv:2406.01958 [math-ph]
G. Gubbiotti, D. Latini and B. K. Tapley, "Coalgebra symmetry for discrete systems", J. Phys. A: Math. Theor. 56 , 205205, 2023. DOI: 10.1088/1751-8121/acc992
R. Campoamor-Stursberg, D. Latini, I. Marquette and Y.-Z. Zhang, "Polynomial algebras from Lie algebra reduction chains $\mathfrak{g} \supset \mathfrak{g}'$ ", Ann. Phys. 459 , 169496, 2023. DOI: 10.1016/j.aop.2023.169496
G. Gubbiotti and D. Latini, "The $\mathfrak{sl}_2(\mathbb{R})$ coalgebra symmetry and the superintegrable discrete-time systems", Phys. Scr. 98 , 045209, 2023. DOI: 10.1088/1402-4896/acbbb2
R. Campoamor-Stursberg, D. Latini, I. Marquette and Y.-Z. Zhang, "Algebraic (super-)integrability from commutants of subalgebras in universal enveloping algebras", J. Phys. A: Math. Theor. 56 , 045202, 2023. DOI: 10.1088/1751-8121/acb576



A.M. Grundland, D. Latini and I. Marquette, "Recurrence relations and general solution of the exceptional Hermite equation", Ann. Henri Poincaré (2023) DOI: 10.1007/s00023-023-01395-x
D. Latini, I. Marquette and Y.-Z. Zhang, "Polynomial algebras of superintegrable systems separating in Cartesian coordinates from higher order ladder operators", Physica D 440 , 133464, 2022. DOI: 10.1016/j.physd.2022.133464
D. Latini, I. Marquette and Y.-Z. Zhang, "Construction of polynomial algebras from intermediate Casimir invariants of Lie algebras", J. Phys. A: Math. Theor. 55 , 335203, 2022. DOI: 10.1088/1751-8121/ac7ca3
D. Latini, I. Marquette and Y.-Z. Zhang, "Racah Algebra $R(n)$ from coalgebraic structures and chains of $R(3)$ substructures", J. Phys. A: Math. Theor. 54 , 395202, 2021. DOI: 10.1088/1751-8121/ac1ee8
D. Latini, I. Marquette and Y.-Z. Zhang, "Embedding of the Racah Algebra $R(n)$ and Superintegrability", Ann. Phys. 426 , 168397, 2021. DOI: 10.1016/j.aop.2021.168397
D. Latini, "Universal chain structure of quadratic algebras for superintegrable systems with coalgebra symmetry", J. Phys. A: Math. Theor. 52 , 125202, 2019. DOI: 10.1088/1751-8121/aaffec
G. Gubbiotti and D. Latini, "A multiple scales approach to maximal superintegrability", J. Phys. A: Math. Theor. 51 , 285201, 2018. DOI: 10.1088/1751-8121/aac036
D. Latini and D. Riglioni, "From ordinary to discrete quantum mechanics: the Charlier oscillator and its coalgebra symmetry", Phys. Lett. A 380 , issue 42, 2016. DOI: 10.1016/j.physleta.2016.08.047
R. Kullock and D. Latini, "Towards classical spectrum generating algebras for f -deformations", Phys. Lett. A 380 , issue 3, 2016. DOI: 10.1016/j.physleta.2015.10.063
D. Latini and O. Ragnisco, "Superintegrable deformations of the KC and HO potentials on curved spaces", Il Nuovo Cimento 38 C , 168, 2015. DOI: 10.1393/ncc/i2015-15168-0
D. Latini and O. Ragnisco, "The classical Taub-NUT system: factorization, spectrum generating algebra and solution to the equations of motion", J. Phys. A: Math. Theor. 48 , 17, 2015. DOI: 10.1088/1751-8113/48/17/175201
M. Arzano, D. Latini and M. Lotito, "Group momentum space and Hopf algebra symmetry of point particles coupled to 2+1 gravity", SIGMA 10 , 079, 23 pages, 2014. DOI: 10.3842/SIGMA.2014.079

Congress proceedings

R. Campoamor-Stursberg, D. Latini, I. Marquette and Y.-Z. Zhang, "Polynomial algebras from commutants: Classical and Quantum aspects of A_3 ", J. Phys.: Conf. Ser. 2667 012037, 2023. DOI: 10.1088/1742-6596/2667/1/012037
D. Latini, O. Ragnisco, A. Ballesteros, A. Enciso, F. J. Herranz and D. Riglioni, "The classical Darboux III oscillator: factorization, spectrum generating algebra and solution to the equations of motion", J. Phys.: Conf. Ser. 670 , 012031, 2016. DOI: 10.1088/1742-6596/670/1/012031



OTHER INFORMATION

Scientific associations:

- Australian and New Zealand Association of Mathematical Physics (ANZAMP) (2022-2023)
- Gruppo Nazionale di Fisica Matematica (GNFM), sez. Meccanica dei sistemi discreti (2017-2018)
- National Institute for Nuclear Physics (INFN) (2014-2017)

Peer Review activity:

I served as a Peer Reviewer for the following scientific journals:

- Journal of Physics A: Mathematical and Theoretical
- FILOMAT
- Nonlinearity
- Physica Scripta
- Symmetry, Integrability and Geometry: Methods and Application (SIGMA)
- Studies in Applied Mathematics

I am also a regular reviewer for zbMATH Open (formerly Zentralblatt MATH) and Mathematical Reviews/MathSciNet.

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Please note that CV WILL BE PUBLISHED on the University website and It is recommended that personal and sensitive data should not be included. This template is realized to satisfy the need of publication without personal and sensitive data.

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Place and date: Genzano di Roma, 27/06/2024