

# Andrea Galasso | Curriculum vitae

No. 7b, Via San Giuseppe, Remedello, Brescia, 25010 – Italy

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Date of birth: December 11th, 1991

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## Recent positions

**Università degli Studi di Milano-Bicocca**

*Postdoctoral Researcher*

**Milan, Italy**

*October 2022 – September 2024*

**National Center for Theoretical Sciences**

*Postdoctoral Researcher*

**Taipei, Taiwan**

*March 2020 – August 2022*

**Università degli Studi di Milano-Bicocca**

*Postdoctoral Researcher (Progetto ID 2018-ATESP-066)*

**Milan, Italy**

*March 2019 – February 2020*

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## Research interests

My research interests concern the interface of geometric representation theory, harmonic analysis, symplectic geometry and Cauchy–Riemann geometry, especially with application to the theory of Geometric Quantization and its generalizations and variants. My main focus is on the interplay between the geometry of the moment map of a Hamiltonian group action and the asymptotics of certain unitary representations that arise when one ‘quantizes’ the action. In my research I have made extensive use of techniques from Complex and Microlocal Analysis.

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## Preprints

- (with Chin-Yu Hsiao) *Embedding theorems for quantizable pseudo-Kähler manifolds*  
preprint: arXiv:2209.10269
- (with Chin-Yu Hsiao) *On the singularities of the Szegő kernels on CR orbifolds*  
preprint: arXiv:2208.03690
- (with Chin-Yu Hsiao) *Functional calculus and Quantization commutes with reduction for Toeplitz operators on CR manifolds*  
preprint: arXiv:2112.11257
- *Commutativity of quantization with conic reduction for torus actions on compact CR manifolds*  
preprint: arXiv:2110.07104

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## Publications

- (with Chin-Yu Hsiao) *Toeplitz operators on CR manifolds and group actions*  
The Journal of Geometric Analysis 33, 21 (2023)  
DOI: <https://doi.org/10.1007/s12220-022-01078-9>
- *Equivariant fixed point formulae and Toeplitz operators under Hamiltonian torus actions and remarks on equivariant asymptotic expansions*  
Int. J. of Mathematics, Vol. 33, No. 2 (2022)  
DOI: <https://doi.org/10.1142/S0129167X22500112>
- (with Roberto Paoletti) *Equivariant Asymptotics of Szegő kernels under Hamiltonian  $SU(2)$ -actions*  
Asian Journal of Mathematics, Vol. 24, No. 3 (2020)  
DOI: <https://doi.org/10.4310/AJM.2020.v24.n3.a6>
- (with Roberto Paoletti) *Equivariant Asymptotics of Szegő kernels under Hamiltonian  $U(2)$ -actions*  
Annali di Matematica Pura e Applicata, Vol. 198, No. 2 (2019)  
DOI: <https://doi.org/10.1007/s10231-018-0791-3>

- o (with Mauro Spera) *Remarks on the geometric quantization of Landau levels*  
Int. J. Geom. Methods Mod. Phys., Vol. 13, No. 10 (2016)  
DOI: <https://doi.org/10.1142/S021988781650122X>

### Conference proceedings

- o (with Roberto Paoletti) *Hamiltonian  $U(2)$ -actions and Szegő kernel asymptotics*  
IOP Conf. Series: Journal of Physics: Conf. Series, Vol. 1194 (2019)  
DOI: <https://doi.org/10.1088/1742-6596/1194/1/012035>

## Education

### Università degli Studi di Pavia & Milano-Bicocca

Milan, Italy

*Ph.D. Student in Mathematics, Date of the PhD defense: 14th of December*

Nov 2015 – Oct 2018

Thesis: *Non Abelian Asymptotics of Szegő Kernels on Compact Quantized Manifolds*

Advisor: Prof. Roberto Paoletti

I have spent 3 months at Université du Luxembourg under the supervision of Prof. Martin Schlichenmaier

### Università Cattolica del Sacro Cuore

Brescia, Italy

*Master's Degree in Mathematics with highest score cum laude*

Oct 2013 – Jul 2015

Thesis: *Geometric Quantization and Landau Levels*

Advisor: Prof. Mauro Spera, Co-Advisor: Prof. Giuseppe Nardelli

### Università Cattolica del Sacro Cuore

Brescia, Italy

*Bachelor's Degree in Mathematics with highest score cum laude*

Sep 2010 – Sep 2013

Thesis: *Two different approaches to tunneling problems*

Advisor: Prof. Fausto Borgonovi, Co-Advisor: Prof. Giulio Giusteri

## Selected conference and seminar talks

**24 July 2022:** Title: *Toeplitz operators on CR manifolds*

Short talk in HAYAMA Symposium on Complex Analysis in Several Variables XXIII

<https://sites.google.com/view/hayama-scv/2022?authuser=0>

**10 March 2022:** Title: *Functional calculus and quantization commutes with reduction*

Academia Sinica, Taipei

[https://www.math.sinica.edu.tw/www/seminar/abstract\\_view\\_e.jsp?seminar\\_id=5143](https://www.math.sinica.edu.tw/www/seminar/abstract_view_e.jsp?seminar_id=5143)

**14 Dec 2021:** Title: *Toeplitz operators on CR manifolds and group actions*

Università Cattolica del Sacro Cuore, Brescia

<https://brescia.unicatt.it/evt-toeplitz-operators-on-cr-manifolds-and-group-actions>

**30 Sep 2021:** Title: *Toeplitz operators on CR manifolds and group actions*

Seminar in Academia Sinica, Taipei

[https://www.math.sinica.edu.tw/www/seminar/abstract\\_view\\_e.jsp?seminar\\_id=5057](https://www.math.sinica.edu.tw/www/seminar/abstract_view_e.jsp?seminar_id=5057)

**09 Aug 2021:** Title: *Toeplitz operators on CR manifolds and group actions*

Short talk in GEOQUANT 2021 Geometry & Quantization International Conference,

<http://home.mathematik.uni-freiburg.de/GEOQUANT2021/conference/Program.html>

**1 May 2021:** Title: *G-Invariant Toeplitz operators on CR manifolds*

21-st Taiwan Geometry Symposium

<https://sites.google.com/view/21st-symposium/>

**27-30 Apr 2021:** Title: *Nuclei di Szegő e azioni di gruppi*

Giornate di Geometria Algebrica e argomenti correlati XV

<http://users.mat.unimi.it/users/alzati/gargnano2020/index.html>

**22 April 2020:** Title: *Asymptotic expansions in geometry and quantization*

Taipei Postdoc Seminar

[www.math.sinica.edu.tw/www/file\\_upload/conference/2016TPS/index.html](http://www.math.sinica.edu.tw/www/file_upload/conference/2016TPS/index.html)

**12 February 2020:** Title: *Equivariant asymptotics of Szegő kernels under Hamiltonian  $SU(2) \times S^1$ -actions*

Talk as part of Progetto ID 2018-ATESP-066

**13 September 2019:** Title: *Equivariant asymptotics of Szegő kernels*

Short talk for the conference GEOQUANT 2019 in Taiwan

<http://math.uni.lu/geoquant2019/>

**20 March 2018:** Title: *Equivariant Asymptotics of Szegő kernels under Hamiltonian  $U(2)$ -actions*

Research seminar for the Working Group Algebra, Geometry and Quantization, Université du Luxembourg

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## Teaching experience

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### At Università Cattolica del Sacro Cuore

#### **Istituzioni di Geometria Superiore (Teaching Assistant)**

Master's Degree in Mathematics

A.Y. 2018/2019 & 2019/2020

Teacher: Prof. Mauro Spera

### At Università degli Studi di Milano-Bicocca

#### **Algebra Lineare e Geometria (Teaching Assistant)**

Bachelor's Degree in Mathematics

A.Y. 2016/2017 & 2017/2018

Teacher: Prof. Sonia Brivio

#### **Geometria II (Tutoring)**

Bachelor's Degree in Mathematics

A.Y. 2015/2016

Teacher: Prof. Roberto Paoletti

#### **General Mathematics (Tutoring)**

Bachelor's Degree in Scienze dell'Organizzazione (SCOR)

A.Y. 2015/2016 & 2017/2018

Teacher: Prof. Marina Pireddu

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## Other Projects and Organization Activity

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**2016-2018:** Organization of the seminar cycle "*Insalate di Matematica*", promoted by Dept. of Mathematics and Applications, Università degli Studi di Milano-Bicocca

**Mar. 2017:** Book's chapter: "*Elogio della mente a Brescia*" in *Alice & Bob* n. 49, I Giochi di Martin Gardner

**20 October 2017:** Popularization's talk for "Celebration of Mind" having title "*Piastrelle Pentagonali*", Università Cattolica del Sacro Cuore, Brescia

<http://elogiodellamente.dmf.unicatt.it/2017/index.html.it>

**Jan. 2015-2016:** "Chiedi all'esperto", as a part of a group of experts trying to answer questions about people's scientific curiosity

<https://www.vialattea.net/content/home-ce/>

**Jan. 2013-2020:** Training lessons for Mathematics competitions

<http://www.disfida.it/allenamenti/>

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## Other work experiences

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**I.I.S.S. C.Golgi, Via Rodi, 16 - Brescia**

Secondary School Teacher

Oct 2018 – February 2019

**AmbienteParco impresa sociale S.r.l., Largo Torrelunga, 7 - 25121 Brescia**

Scientific popularizer

2012/2015

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## Language skills

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**Italian** (mother tongue), **English**, **Mandarin Chinese** (Basic)

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## Computer skills

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Languages: C,  $\text{\LaTeX}$ .

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## Further information

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### Scholarships and prizes

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**Premio Don Bartolomeo Grazioli**

*Prize for Master's Degree Thesis*

2015

**Borsa di Studio "Maria Teresa Ambrosetti"**

*Mathematics Scholarship*

2011/2015

### Other activities

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**Reviewer for ZbMATH, <https://zbmath.org/>**