

# Cristina Tarsi– Curriculum Vitae

---

**Office Address** Dip. Matematica, Via C. Saldini, 50  
Milano, 20133

**Office Phone** +39 02 503 16121

**Office Fax** +39 02 503 16100

**Email** Cristina.Tarsi@unimi.it

**Year of Birth**  
**Nationality**

## Education

2000 **Ph.D. in (pure) Mathematics**  
Universit`a degli Studi di Milano  
Advisor: prof. Bernhard Ruf

1996 **Master's Degree in (pure) Mathematics**  
*Summa cum laude*  
Universit`a degli Studi di Milano

## Professional Experience

2019 **Associate Professor**  
Department of Mathematics, Universit`a degli Studi di Milano.  
Scientific Area 01/A3 - Mathematical Analysis.

2016 **Visiting Professor** at Zehjiang Normal University, Jinhua, China.  
**Visiting Professor** at University of Osaka City University, Japan.  
**Visiting Professor** at University of Tunis El Manar, Tunisia.

2015 **Visiting Professor** at Universidade Federal de Paraiba, Brazil.

2006-2018 **Senior Research Fellow**  
Department of Mathematics, Universit`a degli Studi di Milano.

2001-2005 **Postdoctoral Research Fellow**  
Department of Mathematics, Universit`a degli Studi di Milano.

1999-2005 **Teaching assistant**  
School of Engineering, Politecnico di Milano.

## Fields of research

Nonlinear Analysis, elliptic PDEs and systems of elliptic PDEs, Schrödinger equations, Trudinger-Moser and Hardy type inequalities. Best constant in critical and limiting Sobolev type embeddings. The 1-laplacian operator and generalizations.

## Funded research projects

- 2020 **Principal investigator**  
GNAMPA Research Project  
*A tour on nonlinear world via variational methods.*
- 2019 **Member**  
GNAMPA Research Project Principal investigator **F. Sani**  
(Gruppo Nazionale per l'Analisi Matematica, la Probabilità e le loro Applicazioni).
- 2017 **Funded**  
by MIUR research programme FFABR  
- finanziamento annuale individuale per delle attività a base di ricerca.
- 2017 **Principal investigator**  
University of Milan Research Project  
*Disuguaglianze di tipo Sobolev e applicazioni.*
- 2017 **Member**  
GNAMPA Research Project Principal investigator **E. Terraneo**  
(Gruppo Nazionale per l'Analisi Matematica, la Probabilità e le loro Applicazioni).
- 2016 **Principal investigator**  
University of Milan Research Project  
*Disuguaglianze di tipo Sobolev e applicazioni.*
- 2016 **Member**  
GNAMPA Research Project Principal investigator **M. Calanchi**  
(Gruppo Nazionale per l'Analisi Matematica, la Probabilità e le loro Applicazioni).
- 2015 **Member**  
GNAMPA Research Project Principal investigator **F. Sani**  
(Gruppo Nazionale per l'Analisi Matematica, la Probabilità e le loro Applicazioni).
- 2014 **Principal investigator**  
GNAMPA Research Project  
*Limiting case of Sobolev type embeddings sharp inequalities and applications.*
- 2005-2009 **Member**  
National research projects PRIN 2005, 2007 and 2009.  
Local coordinator **B. Ruf**. National coordinator **V. Benci**.  
The projects have duration of two years.

## Seminars and Participation to International Congress

- 2022 **-Invited Seminar** "Moser type log-mass weighted inequalities and exponential Choquard equations in the plane"  
Special Session *Analysis of Partial Differential Equations in memory of in memory of David R. Adams*,  
AWM Research Symposium at University of Minnesota.  
**-Invited Webinar** (Tencent meeting) "The planar Choquard type equation and d'ér  
Zhejiang Normal University, China.

- 2021 - **Invited Seminar** "The planar Choquard type equation and d'etours" ,  
Universit`a degli Studi di Palermo.  
- *RISM Workshop in occasion of Terence Tao Riemann Prize Week* , Milano-Varese.
- 2020 **Invited Seminar** for the Special Session PSS73 *Sharp inequalities and nonlinear differential equations, 13th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Atlanta , US.*  
**The event has been cancelled** due to the emergency Covid-19.
- 2019 -**Invited Seminar** "A nonlocal Schr"odinger equation in dimension 2" ,  
*American Mathematical Society, Spring Western Meeting*  
University of Hawai'i at Manoa, Honolulu, US.  
-*RISM Workshop: Advances and Challenges in Nonlinear Elliptic Systems, Varese.*  
-**Invited Seminar**"A nonlocal critical equation in the plane with logarithmic potential Vs exponential potential"  
*XI Brazilian-Italian Workshop in Nonlinear Differential Equations, Varese.*
- 2018 -*New Advances in PDE", on the occasion of Anna Maria Micheletti's birthday, Varese.*  
-**Invited Seminar** "Nonlocal Choquard-type equations in dimension 2" ,  
*VII WENLU- Workshop on Nonlinear PDEs and Geometric Analysis,*  
Universidade Federal de Paraiba, Joao Pessoa, Brasile.  
-*Sobolev spaces and partial differential equations. In honour of Vladimir Maz'ya, on the occasion of his 80th birthday , Accademia dei Lincei, Roma.*  
-*Nonlinear Analysis and PDEs in Caserta,*  
Universit`a della Campania L. Vanvitelli, Caserta.
- 2017 - Workshop *James Serrin from his legacy to the new frontiers, Perugia.*  
- Workshop *MIAP: Mathematical methods for digital Image Analysis and Processing, Varese.*  
-*RISM workshop in PDE on the occasion of Daniela Lupo's 60th birthday, Varese.*  
- **Invited Seminar** "Attainability of Hardy inequality through sharp Sobolev-Lorentz embeddings" , *Emerging issues in nonlinear elliptic equations: singularities, singular perturbations and non local problems, IMPAN - Bedlewo, Polonia.*  
- **Invited Seminar** "Sharp Sobolev-Lorentz embeddings and Hardy inequality" ,  
*X Workshop on Nonlinear Differential Equations, Brasilia, Brasile.*
- 2016 - **Invited Seminar** "Supercritical Schr"odinger Systems in dimension two",  
Zhejiang Normal University, Jinhua, China.  
-*NIA: Nonlinear PDE, Inequalities and Applications, Varese.*  
- EWM-EMS summer school *Geometric and Physical aspects of Trudinger-Moser type inequalities - Member of the Organizing Committee Institut Mittag-Leffler, Stockholm, Sweden.*  
-**Selected Seminar** "The 1-biharmonic operator: genesis and applications",  
*Convegno Gnampa 2016 - Montecatini Terme.*  
-**Invited Seminar** "Moser type inequalities `a la Zygmund",  
Osaka City University, Osaka, Japan.  
- **Invited Seminar** "Moser type inequalities `a la Zygmund",  
University of Tunis El Manar, Tunis, Tunisia.
- 2015 - *RISM4: Nonlinear Phenomena in Mathematics and Economics, Varese.*  
- **Invited Seminar** "Limiting Sobolev inequalities and the 1-biharmonic operator",  
*American Mathematical Society, Spring Western Meeting*  
University of Nevada, Las Vegas, US.

- **Invited Seminar** "Limiting Sobolev inequalities and the 1-biharmonic operator",  
IV WENLU - Workshop em Equacões Diferenciais Não-Lineares  
Universidade Federal de Paraíba, João Pessoa, Brazil.
- 2014
  - *Optimal inequalities and PDE* , RISM Workshop, Varese.
  - **Invited Seminar** "Supercritical Schrödinger systems in dimension two",  
*AIMS Conference in Dynamical Systems, Differential Equations and Applications*,  
Madrid, Spain.
  - *A meeting with Louis Nirenberg*, RISM Congress, Varese.
- 2013
  - *Nonlinear Problem with Singular Data*, Accademia Nazionale dei Lincei,  
Roma.
  - *PDE days in Rome*, Università La Sapienza, Roma.
  - *Mathematics in a Complex World* Politecnico di Milano.
  - *Nonlinear Elliptic and Parabolic Partial Differential Equations* Politecnico di Milano.
  - *Giornate Nonlineari* , Università di Torino.
  - **Invited Seminar** "<sup>nd</sup> order embedding and the 1-biharmonic operator",  
*Variational and Topological Methods in Nonlinear Phenomena*, Alghero.
- 2011
  - **Selected Seminar**  
"Casi limite nelle immersioni di Sobolev e immersioni in spazi di Zygmund  
e la disuguaglianza di Adams",  
*XIX National Congress of the Italian Mathematical Society* , Bologna.
  - *Workshop on Nonlinear Differential Equations*, Pienza.
- 2010
  - *Topological and variational methods in nonlinear analysis*, Brescia.
  - **Selected Seminar** "Second order Moser type inequalities in borderline case",  
*Spring School in Nonlinear PDE* , Brussels, Belgium.
  - **Invited Seminar** "Moser type inequalities and Sobolev embeddings in Zygmund spaces",  
University of Milan.
  - *Variational and Topological Methods in Nonlinear Phenomena*, Cortona.
  - *RISM2: Nonlinear Differential Equations*, Verbania.
- 2009
  - *RISM: Advances in number theory and geometry*, Verbania.
- 2008
  - *Workshop on Variational and Topological Methods in Nonlinear Phenomena*, Otranto.
- 2006
  - *Workshop in nonlinear differential equations*, Como.
- 2005
  - *International Symposium on Variational methods and nonlinear differential equations*, Roma.
- 1997
  - *Summer School of Analysis*, Cortona.

## PhD services

- 2022 **Member of the Final Examination Committee**, PhD Program in Mathematics,  
Università degli Studi di Milano and Université Sorbonne, Paris Nord.
- 2021 PhD course **A tour on Kirchhoff type Problems**,  
PhD program in Mathematics, Università degli Studi di Milano.

2016-2019 **Member of the PhD Board**,  
PhD program in Mathematics, Università degli Studi di Milano.

2015 **Referee for the PhD Thesis:**  
PhD Thesis “In´egalit´es de type Trudinger-Moser et applications”  
by M. K. Zghal, Università di Tunis El Manar and Università di Paris-Est Cr´eteil;  
supervisors prof. Bahouri and prof. Majdoub.  
Defended on February 6, 2016.

## Other research and academic activities

2021 **Referee research project** FONDECYT 2022 - Regular Competition  
Chilean National Commission for Scientific and Technological Research (CONICYT).

2021 **Member of the Judging Committee** for the selection procedure  
for a PostDoc Position,  
Dipartimento di Matematica, Università degli Studi di Milano.

2020 **Member of the Judging Committee** for the selection procedure  
for a Research Position RTDa, SC 01-A3, SSD Mat/05,  
Università degli Studi dell’Insubria.

2017 **Referee research project** FONDECYT 2018 - Regular Competition  
Chilean National Commission for Scientific and Technological Research (CONICYT).

2016 **Stage supervisor** of Imen Hidouri  
Université de Kairouan, Institut sup´erieur des math´ematiques appliqu´ees et d’i  
local advisor prof. Sami Aouaoui.

**Referee** Acta Applicandae Mathematicae,  
AIMS Mathematics,  
Annali di Matematica pura e Applicata,  
Applied Mathematical Letters,  
Calculus of Variations and Partial Differential Equations,  
Complex Variables and Elliptic Equations,  
Discrete and Continuous Dynamical System - A,  
Electronic Journal of Qualitative Theory of Differential Equations,  
Indiana University Mathematical Journal,  
Journal of Mathematical Analysis and Applications,  
Journal of Mathematical Physics,  
Mathematische Nachrichten,  
Milan Journal of Mathematics, Nonlinear Differential Equations and Applications,  
Monatshefte für Mathematik,  
Nonlinearity,  
Proceedings of the American Mathematical Society,  
Zeitschrift für angewandte Mathematik und Physik.

**Reviewer** for Mathematical Reviews.

**Member** of the Organizing Committee of the EWM-EMS summer school  
*Geometric and Physical aspects of Trudinger-Moser type inequalities*  
Institut Mittag-Leffler, Stockholm (2016), selected and funded by  
EWM (European Women in Mathematics) and EMS (European Mathematical Society)

**Member** of the Organizing Committee of *RISMA School on Nonlinear Phenomena in Mathematics and Economics*, University of Insubria, Varese (2015).

**Member** of EWM (European Women in Mathematics).

**Member** of INdAM (Istituto Nazionale di Alta Matematica).

**Member** of GNAMPA (Gruppo Nazionale per l'Analisi Matematica, la Probabilità e le loro Applicazioni).

## Advisor

### Master Degree theses

- (2010-2011) Maria Amodio.
- (2011-2012) Andrea Ruggeri.
- (2011-2012) Sofia Maffini.
- (2012-2013) Barbara Ventullo.
- (2014-2015) Elisa Colombi.
- (2015-2016) Matteo Rezzani.
- (2016-2017) Federico Totar
- (2018-2019) Daniela Garavaglia
- (2021-2022) Katia Zavatta.

## Publications

28. C. Bucur, D. Cassani, C. Tarsi, *Quasilinear logarithmic Choquard equations with exponential growth in  $\mathbb{R}^N$* , JDE 328 (2022), 261-294.
27. D. Cassani, C. Tarsi, *Schrödinger–Newton equations in dimension two via a Pohozaev–Trudinger log-weighted inequality*, Calc.Var. 60 (2021).
26. D. Cassani, C. Tarsi, J. Zhang *Bounds for best constants in subcritical Sobolev embeddings*, Nonlinear Analysis 187 (2019), 438-449.
25. D. Cassani, Z. Liu, C. Tarsi, J. Zhang *Multiplicity of sign-changing solutions for Kirchhoff-type equations*, Nonlinear Analysis 186 (2019), 145-161.
24. D. Cassani, B. Ruf, C. Tarsi *On the capacity approach to non attainability of Hardy's inequality in  $\mathbb{R}^n$* , Discrete Contin. Dyn. Syst. Ser. S. 12 (2019), 245-250.
23. D. Cassani, B. Ruf, C. Tarsi *Equivalent and attained version of Hardy's inequality in  $\mathbb{R}^n$* , J. Funct. Anal. 275 (2018), 3303-3324.
22. J.M do O, F. Sani, C. Tarsi, *Vanishing-concentration-compactness alternative for the Trudinger-Moser inequality in  $\mathbb{R}^N$* , Commun.ContempMath. 20 (2018).
21. D. Naimen, C. Tarsi *A Kirchhoff type problem with the Trudinger-Moser growth*, Adv. Differential Equations 22 (2017), 983-1012.
20. C.O. Alves, D. Cassani, C. Tarsi, M. Yang *Existence and concentration of ground state solutions for a critical nonlocal Schrödinger equation in  $\mathbb{R}^2$* , J. Diff. Eq. 261 (2016), 1933-1972.

19. D. Cassani, C. Tarsi, *Existence of solitary waves for supercritical Schrodinger systems in dimension two*, Calc. Var. 54 (2015), 1673-1704.
18. E. Parini, B. Ruf, C. Tarsi, *Higher order functional inequalities related to the clamped 1-biharmonic operator*, Ann. Mat. Pura e Appl. 194 (2015), 1835-1858.
17. E. Parini, B. Ruf, C. Tarsi, *Limiting Sobolev inequalities and the 1-biharmonic operator*, Adv. Nonlinear Anal. 3 (2014), suppl. 1, s19-s36.
16. D. Cassani, F. Sani, C. Tarsi, *Equivalent Moser type inequalities in  $\mathbb{R}^2$  and the zero mass case*, J. Funct. Anal. 267 (2014), 4236-4263.
15. E. Parini, B. Ruf, C. Tarsi, *The eigenvalue problem for the 1-biharmonic operator*, Ann. Sc. Norm. Sup. Pisa, 13 (2014), 1-26.
14. D. Cassani, B. Ruf, C. Tarsi, *A Moser type inequality in Zygmund spaces without boundary conditions*, Contemporary Mathematics 595, Recent Trends in Nonlinear Partial Differential Equations II: Stationary Problems (2013).
13. D. Cassani, B. Ruf, C. Tarsi, *Optimal Sobolev type inequalities in Lorentz spaces*, Potential Analysis, 39 (2013), 265-285.
12. D. Cassani, B. Ruf, C. Tarsi, *Group invariance and Pohozaev identities in Moser type inequalities*, Comm. Cont. Math., 15 (2013).
11. C. Tarsi, *Adams' inequality and limiting Sobolev embeddings into Zygmund spaces*, Potential Analysis, 37 (2012), 353-385.
10. D. Cassani, B. Ruf, C. Tarsi, *Best constants in a borderline case of second order Moser type inequalities*, Ann. I. H. Poincaré, 27 (2010), 73-93.
9. D. Cassani, B. Ruf, C. Tarsi, *Best constants for Moser type inequalities in Zygmund spaces*, Matem. Contemp. 36 (2009), 79-90.
8. B. Ruf, C. Tarsi, *On Trudinger-Moser type inequalities involving Sobolev-Lorentz spaces*, Annali Mat. Pura ed Appl., 188 (2009), 369-397.
7. D. Cassani, C. Tarsi, *A Moser-type inequality in Lorentz-Sobolev spaces for unbounded domains in  $\mathbb{R}^N$* , Asymptotic Analysis, 64 (2009), 29-51.
6. C. Tarsi, *On the existence and radial symmetry of maximizers for functionals with critical exponential growth in  $\mathbb{R}^2$* , Diff. Int. Eq., 21 (2008), 477-495.
5. C. Tarsi, *Perturbation from symmetry and multiplicity of solutions for elliptic problems with subcritical exponential growth in  $\mathbb{R}^2$* , Comm. Pure Appl. An., 7 (2008), 445-456.
4. C. Tarsi, *Perturbation from symmetry and multiplicity of solutions for strongly indefinite elliptic systems*, Adv. Nonlinear Stud., 7 (2007), 1-30.
3. C. Tarsi, *Nonexistence results for a class of nonlinear elliptic equations involving critical Sobolev exponents*, Nonlinear Anal., 66 (2007), 2520-2528.
2. C. Tarsi, *Uniqueness of positive solutions of nonlinear elliptic equations with exponential growth*, Proceed Royal Soc. Edinb., 133 A. (2003), 315-337.
1. M. Squassina, C. Tarsi, *Multiple solutions for quasilinear elliptic problems in  $\mathbb{R}^2$  with exponential growth*, Manuscripta Math. 106 (2001) 315-337 Erratum in Manuscripta Math. 124 (2007), 409-410.

## Preprints

## Submitted

1. H. Luo B. Ruf, C. Tarsi *Bifurcation into spectral gaps for strongly indefinite Choquard equations.*

## In preparation

1. C. Tarsi, *Trudinger-Moser log-mass weighted type inequalities.*

## Chair Teaching

- 2021-2022 **Analisi Matematica 2**,  
Degree in Mathematics, Università degli Studi di Milano  
**Istituzioni di Matematica**,  
Degree in Chemistry, Università degli Studi di Milano
- 2020-2021 **Analisi Matematica 2**,  
Degree in Mathematics, Università degli Studi di Milano  
**Istituzioni di Matematica**,  
Degree in Chemistry, Università degli Studi di Milano
- 2019-2020 **Analisi Matematica 1**,  
Degree in Physics, Università degli Studi di Milano  
**Istituzioni di Matematica**,  
Degree in Chemistry, Università degli Studi di Milano
- 2016-2017 **Analisi Matematica 3**,  
Degree in Physics, Università degli Studi di Milano
- 2013-2014 **Calcolo delle Variazioni**,  
Master's Degree in Mathematics, Università degli Studi di Milano
- 2011-2012 **Argomenti Avanzati di Analisi Funzionale**,  
Master's Degree in Mathematics, Università degli Studi di Milano
- 2008-2009 **Analisi Matematica 2**,  
Degree in Mathematics, Università degli Studi di Milano
- 2006-2007 **Istituzioni di Matematiche**,  
Degree in Information Technology, Università degli Studi di Milano

## Teaching Assistant

- 2021-2022 **Analisi Matematica 1**,  
Degree in Physics, Università degli Studi di Milano
- 2020-2021 **Analisi Matematica 1**,  
Degree in Mathematics, Università degli Studi di Milano
- 2019-2020 **Analisi Matematica 2**,  
Degree in Physics, Università degli Studi di Milano



- 2018-2019 **Analisi Matematica 2**  
Degree in Mathematics, Universit`a degli Studi di Milano  
**Analisi Matematica 1,**  
Degree in Physics, Universit`a degli Studi di Milano  
**Matematica 1,**  
Degree in Geology, Universit`a degli Studi di Milano
- 2017-2018 **Analisi Matematica 3**  
Degree in Mathematics, Universit`a degli Studi di Milano  
**Analisi Matematica 1,**  
Degree in Physics, Universit`a degli Studi di Milano  
**Analisi Matematica 4,**  
Master's Degree in Physics, Universit`a degli Studi di Milano  
**Matematica 1,**  
Degree in Geology, Universit`a degli Studi di Milano
- 2016-2017 **Analisi Matematica 2**  
Degree in Mathematics, Universit`a degli Studi di Milano  
**Real Analysis,**  
Master's Degree in Mathematics, Universit`a degli Studi di Milano
- 2015-2016 **Analisi Matematica 1**  
Degree in Mathematics, Universit`a degli Studi di Milano  
**Real Analysis,**  
Master's Degree in Mathematics, Universit`a degli Studi di Milano  
**Analisi Matematica 2,**  
Degree in Physics, Universit`a degli Studi di Milano
- 2014-2015 **Analisi Matematica 1**  
Degree in Mathematics, Universit`a degli Studi di Milano  
**Analisi Matematica 2,**  
Degree in Physics, Universit`a degli Studi di Milano
- 2013-2014 **Analisi Matematica 2,**  
Degree in Mathematics, Universit`a degli Studi di Milano  
**Complementi di Matematica,**  
Degree in Information Technology, Universit`a degli Studi di Milano
- 2012-2013 **Analisi Matematica 2,**  
Degree in Mathematics, Universit`a degli Studi di Milano  
**Analisi Matematica 3,**  
Degree in Mathematics, Universit`a degli Studi di Milano
- 2011-2012 **Analisi Matematica 3,**  
Degree in Mathematics, Universit`a degli Studi di Milano  
**Analisi Matematica 2,**  
Degree in Physics, Universit`a degli Studi di Milano
- 2010-2011 **Analisi Matematica 3,**  
Degree in Mathematics, Universit`a degli Studi di Milano  
**Analisi Matematica 1,**  
Degree in Physics, Universit`a degli Studi di Milano

- 2009-2010 **Analisi Matematica 2**,  
Degree in Mathematics, Università degli Studi di Milano  
**Analisi Matematica 2**,  
Degree in Physics, Università degli Studi di Milano
- 2008-2009 **Analisi Matematica 1**,  
Degree in Physics, Università degli Studi di Milano
- 2007-2008 **Analisi Matematica 1**,  
Degree in Mathematics, Università degli Studi di Milano  
**Analisi Matematica 2**,  
Degree in Mathematics, Università degli Studi di Milano
- 2006-2007 **Analisi Matematica 1**,  
Degree in Mathematics, Università degli Studi di Milano
- 2005-2006 **Istituzioni di Matematiche**,  
Degree in Information Technology, Università degli Studi di Milano
- 2004-2005 **Elementi di Analisi Matematica A e Geometria**,  
School of Engineering, Politecnico di Milano  
**Analisi Matematica B**,  
School of Engineering, Politecnico di Milano  
**Analisi Matematica 2**,  
Degree in Physics, Università degli Studi di Milano.
- 2003-2004 **Elementi di Analisi Matematica A e Geometria**,  
School of Engineering, Politecnico di Milano  
**Analisi Matematica B**,  
School of Engineering, Ingegneria, Politecnico di Milano  
**Analisi Matematica B**,  
School of Engineering, Ingegneria Medica, Politecnico di Milano
- 2002-2003 **Elementi di Analisi Matematica A e Geometria**,  
School of Engineering, Politecnico di Milano
- 2000-2001 **Analisi Matematica 2**,  
School of Engineering, Politecnico di Milano  
**Istituzioni di Matematiche**,  
Degree in Chemistry and Pharmaceutical technologies, Università degli Studi di Milano
- 1999-2000 **Analisi Matematica 1**,  
School of Engineering, Politecnico di Milano  
**Istituzioni di Matematiche**,  
Degree in Chemistry and Pharmaceutical technologies, Università degli Studi di Milano
- 1998-1999 **Analisi Matematica 1**,  
School of Engineering, Politecnico di Milano

Milano, 06/09/2022