# Chenmin Sun

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## Research interests

**Analysis, Partial differential equations, Mathematical physics**: microlocal analysis, control theory, nonlinear hyperbolic and dispersive equations, kinetic theory.

## Employment

- **From January 2022, Junior researcher of CNRS (CR)**

  Laboratoire d'analyse et de mathématiques appliquées, UMR 8050, Université Paris-Est Créteil, France

- **Sep.2018-Sep.2021, Postdoc:** Laboratoire de mathématique AGM, CY Cergy-Paris Université, France:

  Under the Postdoc fellowship (3 years) of the programme :"Initiative d'Excellence Paris Seine", Université de Cergy-Pontoise.

## Education

- **2015-2018, Université de Nice-Sophia-Antipolis, Nice, France**

  Thesis title : Control and stabilization for some hyperbolic and dispersive PDEs.

  Advisors : Gilles Lebeau .

- **2014-2015, Université Paris Sud, Orsay, France**

  Master 2: Analysis of PDEs and scientific computing, UFR Sciences.

- **2013-2014,Yau Mathemtical Sciences Center, Tsinghua University, Beijing, China**

  M1 in fundamental mathematics.

- **2009-2013, Central China Normal University, Wuhan, China**

  Undergraduate: double major in mathematics and economics.

## Long term visit

- **September -December, 2021**, ICERM, Brown University, Providence, USA

  *Specific program*: Hamiltonian methods in dispersive and wave evolution equations.

## Short term visit

- **October 19-24, 2025,** , University of Birmingham, UK, *Invited by*: Yuzhao Wang.
- **January 29-31, 2025,** , Academy of Mathematics and System Science, Beijing, China, *Invited by*: Xu Yuan.
- **January 13-20, 2025** , Institute of Applied Physics and Computational Mathematics, Beijing, China, *Invited by*: Jiqiang Zheng.
- **January 13-20, 2024,** , ShanghaiTech University, Shanghai, China, *Invited by*: Haitian Yue.
- **March 2023, 6-25**, UMass Amherst, Amherst, USA, *Invited by*: Andrea R. Nahmod.
- **October, 2022 , 14-21** Université de Monastir, Monastir, Tunisia, *Invited by*: Kaïs Ammari,
- **December 2019, 1-7**, University of Edinburgh, Edinburgh, UK, *Invited by*: Tadahiro Oh
- **November 2019, 18-28**, Hausdorff research institute for mathematics, Bonn, German,
  *Trimester program*: Randomness, PDEs and Nonlinear Fluctuations, *Invited by*: Weijun Xu
- **July 2019, 21-28**, Academy of Mathematics and Systems Science, Beijing, China, *Invited by*: Ping Zhang

## Conference/Workshop talks

- **(Upcoming) June 8-June 12, 2026, Pisa, Italy**

  Randomness, analysis and PDEs : Conference in honour of Nicolas Burq on the occasion of his 60th birthday.

- **(Upcoming) March 31-2 April, 2026, Nancy, France**

  Regional PDE conference.

- **June 30-July 4, 2025, Toulous, France**

  Control of PDE and related topics.

- **June 11-13, 2025, Lyon, France**

  Rencontres de l'ANR Smooth, ENS Lyon.

- **April 7-April 11, 2025, Pisa, Italy**

  GEOEDP 2025, University of Pisa.

- **October 7-11, 2024, Lausanne, EPFL, Suisse**

  Bernoulli workshop on dispersive equations: Young researchers in deterministic and probabilistic dispersive equations.

- **October 6, 2023, Nancy, France**

  Rencontres de l'ANR Smooth, 6 octobre, 2023 Nancy.

- **June 20-24, 2022, Edinburgh, UK**

  Harmonic analysis, stochastics and PDEs in honour of Nicolai Krylov's 80th birthday.

- **May 22-28, 2022, Oberwolfach, Germain**

  Deterministic Dynamics and Randomness in PDE.

- **May 9-11, 2022, Monastir, Tunisia**

  Control & Inverse Problems (CIP)

- **March 2022, Cergy, France**

  CY Days in Nonlinear Analysis,

- **February 2022, Vannes, France**

  Conférence itinérante du GDR analyse des équations aux dérivées partielles,

  Journées Jeunes EDPistes français 2021.

- **March 2021, Besançon, France (video-conference)**

  Journées Jeunes EDPistes français 2021.

- **March 2021, Dijon, France (video-conference)**

  13th meeting of the GDR Dynqua.

- **January 2021, Nante, France (cancelled for the sanitary reason)**

  12th conférence itinérante du GDR Analyse des EDPs

- **Sepember 2020, Domaine de Chales, France**
  Regional Conference - Spectral Theory and Geometry
- **Sepember 2019, Erice, Italy**
  New trends in propagation of linear and nonlinear wave phenomena
- **June 2019, University of Bergen, Norway**
  Dispersive waves and related topics (Conference in honor of Gilles Lebeau)
- **June 2019, Cornell University, USA**
  11-th Cornell Probability summer school
- **September 2018, Foz do Arelho, Portugal**
  GE2MI conference on PDEs, Control Theory and Related Topics
- **February 2018, Madrid, Spain**
  Microlocal and numerical analysis, kinetic equations, control conference
- **Oct 2017, Sardinia, Italy**
  Microlocal analysis, resonances and control theory in PDEs

## Recent seminar talks (2023-)

- **November 2025, Laboratoire de mathématiques de Besançon, France**
  Séminaire EDPs.
- **November 2025, , Institut de Mathématiques de Toulouse, France**
  Séminaire Analyse.
- **October 2025, University of Birmingham, UK**
  Analysis Seminar.
- **June 2025, Online**
  Seminar on wave equations and quadratic pencils,
  Organizers : Yuri Latushkin and Yuri Tomilov.
- **April 2025, , Université Sorbonne Paris Nord, France**
  Séminaire PM - EDP du LAGA.
- **November 2024, , Universität Bonn, Germany**
  Graduate seminar on Advanced topics in PDE.

- **October 2023, Université d'Évry, France**

  Séminaire d'analyse du LaMME.

- **May 2023, Karlsruher Institut für Technologie, Germany**

  Karlsruhe PDE Seminar.

- **January 2023, Institut de Mathématiques de Bordeaux, France**

  Séminaire de EDP de IMB.

## Teaching Experience

- **Jan. 2026-Mar.2026**, Université Gustave-Eiffel, France

  30h CM Semiclassical Analysis, pour M2 math.

- **Jan. 2023-Apr.2023**, Université Parsi Est Créteil, France

  36h TD Groupes, Anneaux, pour L2 math.

- **Jan. 2021-Apr.2021**, CY Cergy-Paris Université, France

  18h cours-TD Anglais-Mathématiques pour L3 math.

- **Sep. 2020-Dec.2020**, CY Cergy-Paris Université, France

  36h TD in Math.1 PCST.

- **August 2018**, Yau mathematical Sciences Center, Beijing, China.

  12 hours mini-courses in control for wave equation (together with Hui Zhu, 6 hours each).

- **Sep. 2017 - Dec. 2017**, Université de Nice-Sophia-Antipolis, France

  36h TD in linear algebra.

- **Feb.2014-June.2014**, Tsinghua University, Beijing, China.

  36h TD in real analysis.

- **Sep.2013-Jan.2014**, Tsinghua University, Beijing, China.

  36h TD in applied stochastic process.

## Research contracts

- **PEPS-JCJC funding for young researchers from INSMI, CNRS**:
  **Project**: Control for dispersive equations
  **PI**: Chenmin Sun, **Date**: Feb-Dec. 2024 **Amount**: 3500 euros.
- **PEPS-JCJC funding for young researchers from INSMI, CNRS**:
  **Project**: Analysis and Control for evolution equations
  **PI**: Chenmin Sun, **Date**: Feb-Dec. 2023 **Amount**: 5000 euros.

I am participant of the following grands:

- **2022-2024**, Member the collaborative ANR project Smooth ANR-22-CE40-0017.: ANR-18- CE40- 0020-01. PI: Nikolay Tzvetkov and Ismael Bailleul.
- **2018-2022**, Member the collaborative project ANR grant ODA: ANR-18- CE40- 0020-01. PI: Nikolay Tzvetkov.

## Organizations

- **Colloque**: Analyse Harmonique et EDP, Université d'Evry, 2021 July 8-9.
  **Organizers**: Diego Chamorro, Chenmin Sun, Jiao He.
- **SMAI Junior workshop**: Nonlinear waves and turbulence, Institut Henri Poincaré, 2023 May 5.
  **Organizers**: Yvonne Alama Bronsard, Nicolas Camps, Chenmin Sun, Jiao He.
- **Groupe de Travail en EDP à Créteil**: Main organizer from January 2024

## Academic advising

- Alexis Knzevitch: Master 2 Internship, Spring 2023.
- Tooryanand Seetohul: Master 1 Internship, Spring 2023.
- Alexis Knzevitch (co-advised with Nikolay Tzvetkov): PhD thesis from Fall 2023.
- Alassane Abou and Leiwei Zhang : Master 1 TER (Master 1 internship), Spring 2024.

## Other academic service

- Member of the hiring committee of UPEC for MCF (assistant professor) : 2025 March-May

## Publications (chronological order)

-1 with Bo Xia, Probabilistic well-posedness for supercritical wave equations with periodic boundary condition on dimension three, *Illinois J. Math.*, 60, no.2, 481-503, 2016.

-2 with Hua Wang, Xiaohua Yao and Jiqiang Zheng. Scattering below ground state of focusing fractional nonlinear Schrödinger equation with radial data, *Discrete and Continuous Dynamical Systems*, 38(4):2207-2228, 2018.

-3 Semi-classical propagation of singularities for Stokes system, *Communications in Partial Differential Equations*, 45:8, 970-1030,

-4 with Felipe W. Chaves-Silva. Stabilization of a hyperbolic Stokes system under geometric control condition, *Z. Angew. Math. Phys.*, 71, 139 (2020).

-5 with Ivonne Rivas. Internal controllability for the Kadomtsev-Petviashvili II equation, *SIAM Journal on Control and Optimization*, 58(3):1715-1734.

-6 with Jiqiang Zheng, Low regularity blowup solutions for the mass-critical NLS in higher dimensions, *Journal de Mathématiques Pures et Appliquées*, 134 (2020) 255-298,.

-7 with Nikolay Tzvetkov, New examples of probabilistic well-posedness for wave equations, *Journal of Functional Analysis*, 278(2):108322, 2019.

-8 with Nikolay Tzvetkov, Gibbs measure dynamics for fractional NLS equation, *SIAM J. Math. Anal.*, 52(5), 4638-4704.

-9 with Nikolay Tzvetkov, On the pathological set in probabilistic well-posedness of nonlinear wave equations, *Comptes Rendus Mathematique*, Tome 358 (2020) no. 9-10, pp. 989-999.

-10 with Nikolay Tzvetkov, Refined probabilistic well-posedness for the weakly dispersive NLS, *Nonlinear Analysis*, 213(11): 112530..

-11 with Cyril Letrouit, Observability of Bouendi-Grushin type equations through resolvent estimates, *J. Inst. Math. Jussieu* (2021), 1–39.

-12 with Nicolas Burq, Decays rates for Kelvin-Voigt damped wave equations II: the geometric control condition, *Proceedings AMS*, 150 (2022), 1021–1039.

-13 with Nicolas Burq, Decays for Kelvin-Voigt damped wave equation: Piece-wise smooth damping, *J. Lond. Math. Soc.* (2) 106 (2022), no. 1, 446–483.

-14 Sharp decay rate for the damped wave equations with convex-shaped damping, *Int. Math. Res. Not.* IMRN (2023), no. 7, 5905–5973.

-15 with Nikolay Tzvetkov, Weijun Xu

Universality results for a class of nonlinear wave equations and their Gibbs measures, *Séminaire Laurent Schwartz– EDP et applications* (2021-2022), Exposé no. 15, 10 p.

-16 with Nicolas Burq, Time optimal observability for Grushin-Schrödinger equation, *Analysis & PDEs*, Vol. 15 (2022), No. 6, 1487-1530.

-17 with Victor Arnaiz, Sharp resolvent estimate for the Baouendi-Grushin damped-wave operator and applications, *Comm. Math. Phys.* 400 (2023), no. 1, 541–637.

-18 with Pei Su and Xu Yuan, Quantitative observability for one-dimensional Schrödinger equations with potentials, *J. Funct. Analysis* (2025), Vol.288, 2.

-19 with Nikolay Tzvetkov, Quasi-invariance of Gaussian measures for the 3d energy critical nonlinear Schrödinger equations, *Comm. Pure Appl. Math*, 78 (2025), no. 12, 2305-2353.

-20 with Nicolas Burq, Nicolas Camps, Mickaël Latocca, Nikolay Tzvetkov, The Second Picard iteration of NLS on the 2d sphere does not regularize Gaussian random initial data, *EMS Survey* 2025, 12 (2025), no. 1, 123–154.

-21 with Engin Basakoglu, Nikolay Tzvetkov, Yuzhao Wang, Local well-posedness for the periodic Boltzmann equation with constant collision kernel, to appear in *J. Funct. Analysis*.

-22 with Engin Basakoglu, Nikolay Tzvetkov, Yuzhao Wang, Hyperbolic nonlinear Schrödinger equations on $R \times T$, *Partial Diff. Equa. Appl.*, Vol. 6, 51 (2025)

## Pre-Publications

-1 Exact controllability of linear KP-I equation, (this is a part of my PhD thesis that will not be submitted)

-2 with Nikolay Tzvetkov and Weijun Xu, Weak universality for a class of nonlinear wave equations, accepted by Annales de l'institut Fourier.

-3 with Nicolas Burq, Nicolas Camps, Nikolay Tzvetkov, Probabilistic well-posedeness for the nonlinear Schrödinger equation on the 2d sphere I: positive regularities, preprint.

-4 with Kévin Le Balc'h and Jingrui Niu, Geometric condition for observability of electromagnetic Schrödinger operators, submitted.

-5 with Nicolas Burq, Nicolas Camps, Nikolay Tzvetkov, Invariant Gibbs measure for the cubic NLS on the 2-sphere, in preparation.

## Language

- **Chinese**: Mother tongue
- **English**: Sufficient for scientific communication
- **French**: Sufficient for scientific communication