Crin-Barat Timothée

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date of birth: 28/09/1992

Research experiences

Oct 2022-Sep 2023

Postdoc at Friedrich-Alexander University, Erlangen-Nuremberg,

Supervised by Enrique Zuazua, in the Chair for Dynamics, Control and Numerics – Alexander von Humboldt Professorship

Jan 2022-Sep 2022

Postdoc at Deusto University, Bilbao

Supervised by Enrique Zuazua. ERC DyCon

Sep 2021-Dec 2021

Research assistant at University Paris-Est Créteil

Financed by the ANR project INFAMIE (ANR-15-CE40-0011)

Oct 2017 – Dec 2021

Ph.D. in Mathematics

Title : *Partially Dissipative Hyperbolic Systems and application to fluids mechanics.*
Thesis defence : 13 December 2021, University Paris-Est Créteil
Supervisor: Raphaël Danchin
Referees: Karine Beauchard and Jean-François Coulombel
Examiners: Sylvie Benzoni-Gavage, Didier Bresch, Roberto Natalini and Denis Serre.

Teaching experiences

2020-2021

Research and teaching assistant at University Paris-est Créteil

- 180 hours of teaching analysis and algebra for undergraduate students.

2018-2020

Teaching assistant

- 144 hours of teaching analysis and algebra for undergraduate students.

Education background

2015 - 2017

Master's Degree in Mathematics of Modelling

Sorbonne University (formerly University Pierre and Marie Curie)

- Diploma obtained with honors.
- Specialized in Numerical Analysis and Partial differential equations:
  - The incompressible Navier-Stokes equations
  - Littlewood-Paley Theory
  - Spectral theory of self-adjoint operators.
  - Control theory in finite and infinite dimensions.
  - Elliptic equations

2014 - 2015

Bachelor's Degree in Mathematics

Sorbonne University

- Diploma obtained with honors.

2011 - 2014

Preparation for national competitive entrance exams leading to French "grandes écoles", CPGE MP/MPSI, major in mathematics and physics.

High school Gustave Monod - Enghien-Les-Bains

Published papers

« Global existence results in the critical regularity setting for partially dissipative one-dimensional hyperbolic systems, and applications » with Raphaël Danchin. Pure and Applied Analysis, 4(1):85–125, 2022.

« Partially dissipative hyperbolic systems in the critical regularity setting : the multi-dimensional case » with Raphaël Danchin. J. Math. Pures Appl. (9) 165 (2022) 1–41.

« Global existence result for partially dissipative hyperbolic systems in the L^p framework and relaxation limit » with Raphaël Danchin. Math. Ann. 2022.

« Relaxation limit for a damped one-velocity Baer-Nunziato model to a Kappila model » with Cosmin Burtea and Jin Tan. Mathematical Models and Methods in Applied Sciences 2023

« Diffusive relaxation limit of the multi-dimensional hyperbolic Jin-Xin system» with Ling-Yun Shou, 2022. Journal of Differential Equations 2023

« The hyperbolic-parabolic chemotaxis system modelling vasculogenesis: global dynamics and relaxation limit» with Qingyou He and Ling-Yun Shou. SIAM Journal on Mathematical Analysis. 2023

Submitted papers

« On the decay of one-dimension locally and partially dissipated hyperbolic systems» with Nicola de Nitti and Enrique Zuazua, 2022.

« Relaxation approximation and asymptotic stability of stratified solutions to the IPM equation» with Roberta Bianchini and Marius Paicu, 2022.

« On the overdamping phenomena for compressible multi-fluid systems with rough coefficients» with Ling-Yun Shou and Jin Tan, 2022.

« Large time asymptotics for partially dissipative hyperbolic systems without Fourier analysis: application to the nonlinearly damped p-system» with Ling-Yun Shou and Enrique Zuazua, 2023.

Research talks

- 06.23 Online conference at Nanjing University, China
- 08.11.23 Conference at Sendai International Center, Japan
- 27.03.23 Seminar of Applied Analysis, University of Amiens
- 22.03.23 Journées Jeunes EDPistes, Tours
- 07.02.23 Seminar of Analysis, Institut Mathématique de Bordeaux
- 02.02.23 Seminar of Analysis, IMJ-PRG, University of Paris
- 05.12.22 Mathflows - CIRM, Marseille
- 11.11.22 Seminar of Analysis, FAU Erlangen-Nuremberg.
- 26.08.22 and 01.09.22 IX Partial differential equations, optimal designs and numerics, Benasque.
- 20.06.22 Workshop “Recent Advances in Analysis and Control”. FAU
- 06.04.22 Tongji University Seminar. Shanghai, China.
- 05.04.22 CIRM -Jean-Morlet Chair 2022 - Research School: Mathematical Advances in Geophysical Flows.
- 19.01.22 CCM Seminar - Fundacion Deusto.
- June 2021 *International Workshop on Recent Advances in Nonlinear PDE* - Nanjing University.
- 2018-2020 Mutiple talks at the PhD seminar of University Paris-Est Creteil.

Scientific visits

- 30 January - 3 February 2023, invited by Cosmin Burtea at University of Paris, IMJ-PRG Institute.
- 6-8 February 2023, invited by Franck Sueur at the Institut Mathématiques de Bordeaux. Research discussions with Marius Paicu and Franck Sueur.