ALLEGATO B

UNIVERSITÀ DEGLI STUDI DI MILANO
selezione pubblica per n.__1_ posto/i di Ricercatore a tempo determinato in tenure track (RTT)
per il settore concorsuale __01/A3_____ ,
settore scientifico-disciplinare _MAT/05_____
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Clara Patriarca
CURRICULUM VITAE

INFORMAZIONI PERSONALI

COGNOME	PATRIARCA
NOME	CLARA

TITOLI

TITOLO DI STUDIO

Laurea Magistrale in Ingegneria Matematica, Politecnico di Milano, punteggio finale: 108/110.
Titolo tesi: Modular Energies for Crystal Elasto-Plasticity and Structural Phase Transformations
Supervisore: Prof. Paolo Biscari
Cosupervisore; Prof. Giovanni Zanzotto
Data di conseguimento: 16/04/2019

TITOLO DI DOTTORE DI RICERCA O EQUIVALENTI, OVVERO, PER I SETTORI INTERESSATI, DEL DIPLOMA DI SPECIALIZZAZIONE MEDICA O EQUIVALENTE, CONSEGUITO IN ITALIA O ALL'ESTERO

Titolo di Dottorato di Ricerca Europeo in Metodi e Modelli Matematici per l'Ingegneria, Politecnico di Milano, punteggio finale: summa cum laude.
Titolo tesi: Analysis of some fluid-structure interaction problems in channels
Supervisore: Prof. Filippo Gazzola
Data di conseguimento: 13/02/2023

CONTRATTI DI RICERCA, ASSEGNI DI RICERCA O EQUIVALENTI

- Assegnista di ricerca presso Politecnico di Torino, Dipartimento di Scienze Matematiche, da Novembre 2022 a Ottobre 2023, Mentore: Elvise Berchio
- (attualmente) PostDoctoral Researcher presso Universitè Libre di Bruxelles, Dipartimento di Matematica, da Novembre 2023, Mentore: Denis Bonheure

ATTIVITÀ DIDATTICA A LIVELLO UNIVERSITARIO IN ITALIA O ALL'ESTERO

Université Libre de Bruxelles:

- Teaching Assistant (20 ore), Méthodes variationnelles et équations aux dérivées partielles (Mathematics, 1st year M.Sc)- *Second Semester 2023-2024*

Politecnico di Milano

- Teaching Assistant (40 ore), Analisi Matematica 2 (Management and Production Engineering, 1st year B.Sc)- *Second Semester 2022-2023*

- Teaching Assistant (40 ore), Analisi Matematica 1 e Geometria (Management and Production Engineering, 1st year B.Sc)- *First Semester 2022-2023*

- Teaching Assistant (40 ore), Mathematical and Numerical Methods in Engineering (Biomedical Engineering, 1st year M.Sc) - *First Semester 2021-2022*

- Teaching Assistant (40 ore), Analisi Matematica 2 (Management and Production Engineering, 1st year B.Sc)- *Second Semester 2020-2021*

- Teaching Assistant (40 ore), Mathematical and Numerical Methods in Engineering (Biomedical Engineering, 1st year M.Sc) -*First Semester 2020-2021*

- Teaching Assistant (40 ore), Analisi Matematica 2 (Management and Production Engineering, 1st year B.Sc)- *Second Semester 2019-2020*

DOCUMENTATA ATTIVITÀ DI FORMAZIONE O DI RICERCA PRESSO QUALIFICATI ISTITUTI ITALIANI O STRANIERI

Periodi di visita:

- Université Libre de Bruxelles, Febbraio 2022-Luglio 2022

Periodo di Visita al Dipartimento di Matematica sotto la supervisione del Prof. Denis Bonheure, nel gruppo di Ricerca: Analisi e Equazioni alle Derivate Parziali

- IMAG, Université de Montpellier, 11-15 Marzo 2024

Collaborazione scientifica con Prof. Matthieu Hillairet

- Institute of Mathematics of the Czech Academy of Sciences, Prague

Visita su invito da parte della Prof. Sarka Necasova

REALIZZAZIONE DI ATTIVITÀ PROGETTUALE

ORGANIZZAZIONE DI CONFERENZE:

1) Nonlinear PDEs: theory and modelling of real phenomena on the occasion of Filippo Gazzola's 60th birthday, RISM, Varese *June 2024*

- *https:// www.rism.it/ events/ nonlinear-pdes-theory-and-modelling-of-real-phenomena*

- Member of the organizing commitee

2) Recent Advances in Analysis, PDEs and Applications, Dipartimento di Matematica, Politecnico di Milano *December 2021*

- *https:// www.mate.polimi.it/ upload/ Locandina CP web.pdf*

- Member of the scientific and organizing commitee

ORGANIZZAZIONE, DIREZIONE E COORDINAMENTO DI CENTRI O GRUPPI DI RICERCA NAZIONALI E INTERNAZIONALI O PARTECIPAZIONE AGLI STESSI

PARTECIPAZIONE A PROGETTI DI RICERCA FINANZIATI

-Modelli PDE-ODE nonlineari e proprietà di PDE su domini standard e non-standard. *2024*
Institution: Indam-GNAMPA. Project Director: Edoardo Bocchi
- Modelli matematici di EDP per fluidi e strutture e proprietà geometriche delle soluzioni di EDP. *2023*
Institution: Indam-GNAMPA. Project Director: Alessio Falocchi
- Modelli del quarto ordine per la dinamica di strutture ingegneristiche: aspetti analitici e applicazioni. *2022*
Institution: Indam-GNAMPA. Project Director: Prof. Maurizio Garrione

ATTIVITÀ DI RELATORE A CONGRESSI E CONVEGNI NAZIONALI E INTERNAZIONALI

- Journée d'Analyse Appliquée en Hauts-de-France *October 2024,* Invited Talk on "Long-time behavior of an anisotropic rigid body interacting with a Poiseuille flow in an unbounded 2D channel"
- Minisymposium "PDE Theory for Fluid-Structure Interactions", AMS-UMI meeting in Palermo *July 2024,* Invited Talk on "TBA"
- Applied PDEs Seminar at Imperial College London *February 2024,* Invited Talk on "Long time behavior of fluid-structure interaction problems"
- Winter Workshop on Fluid Structure Interaction Problems, Départment de Mathématique, Université Libre de Bruxelles *January 2024*, Invited Talk on "Long-time behavior of an anisotropic rigid body interacting with a Poiseuille flow in an unbounded 2D channel"
- Journée de Contact FNRS ULB-UCLouvain (Analysis and PDEs) *December 2023,* Invited Talk on "Long-time behavior of an anisotropic rigid body interacting with a Poiseuille flow in an unbounded 2D channel"
- "$P(n)/N(p)$: Problemi differenziali nonlineari/Nonlinear differential problems", Dipartimento di Matematica, Sapienza Università di Roma *October 2023*, Invited Talk on "Attractors for a fluid-structure interaction problem in a time-dependent phase space"
- Young Researchers in PDEs, Instituto de Ciencias matematicas, Madrid, *September 2023*, Seminar on "Stability results for the 3D evolution Navier-Stokes equations under Navier boundary conditions"
- 13th Americas Conference on Diff. Equations and Nonlinear Analysis and ICMC Summer Meeting on Differential Equations - 2023 Chapter, Sao Carlos *February 2023*, Invited talk on "Explicit bounds for the unique solvability of steady fluid-structure interaction problems"
- PDEs in Cogne, Cogne *January 2023,* Invited talk on "Well-posedness and long-term dynamics of a fluid-structure interaction problem"
- IN-VENTO 2022, XVII Conference of the Italian Association for Wind Engineering, Department of Mechanical Engineering, Politecnico di Milano, Milano *September 2022,* Seminar on "A numerical characterization of the attractor for a fluid-structure interaction problem"
- Mathematical Fluid Mechanics In 2022, Institute of Mathematics of the Czech Academy of Sciences, Prague *August 2022,* Seminar on " Attractors for a fluid-structure interaction problem in a time-dependent phase space " (online)

- First UMI meeting of Ph.D. students, 100 years UMI - 800 years UniPD, Department of Mathematics, University of Padova *May 2022*, Seminar on " Attractors for a fluid-structure interaction problem in a time-dependent phase space "
- "Proprietà Qualitative per Soluzioni di Equazioni Ellittiche Non-Lineari", Dipartimento di Matematica e Informatica dell'Università della Calabria *April 2022*, Invited talk on "Explicit bounds for the unique solvability of steady fluid-structure interaction problems"
- SIAM 2022 Conference on Analysis of Partial Differential Equations *March 2022,* Invited talk on "Long-Time Dynamics of a Fluid-Structure-Interaction System" (online)
- "Cossa xe...? Seminar", SISSA, Trieste *January 2022,* Invited talk on "Cossa xe .. fluid-structure interaction problems? "
- Cycle of Seminars of the PDEs group at the Institute of Mathematics of the Czech Academy of Sciences, Prague *November 2021,* Invited talk on "An existence and uniqueness result for a fluid-structure-interaction evolution problem in an unbounded 2D channel" (*https:// download.math.cas.cz/ media/ seminars/ PDE/ Necas PDE Seminar, November 23, 2021, Clara Patriarca.mp4*)
- Lake Como School of Advanced Studies, Partial Differential Equations of Mathematical Physics and Applications *September 2021*, Seminar on "An explicit threshold for the appearance of the lift on the deck of a bridge"
- XLVI Summer school on Mathematical Physics, Ravello (with full grant) *September 2021,* Seminar on "Interaction between wind and suspension bridges: a theoretical approach"
- Prague-sum School "Fluids Under Control", Prague (support granted) *August 2021* Poster session (*https:// prague-sum.com/ download/ 2021/ Patriarca poster.pdf*)
- Analysis@polimi, Dipartimento di Matematica, Politecnico di Milano *April 2021,* Invited talk on "An existence and uniqueness result for a fluid-structure-interaction evolution problem in an unbounded 2D channel" (online)
- Graduate Inter-university Math Seminars *March 2021,* Invited talk on "Interaction between wind and suspension bridges: a theoretical approach" (online) (*https:// sites.google.com/ view/ gim-seminars/ home-page*)
- Winterschool on Analysis and Applied Mathematics, Munster *February 2021* Poster session (online) (*https:// www.uni-muenster.de/ AMM/ num/ Friedrich/ Patriarca.pdf*)
- Research Group on Navier-Stokes Equations and Fluid-Structure Interactions *January 2021*, Invited talk on "An existence and uniqueness result for a fluid-structure-interaction evolution problem in an unbounded 2D channel" (online) (*http:// www1.mate.polimi.it/ ~gazzola/ FSI.htm*)
- XLV Summer school on Mathematical Physics, Ravello (with full grant) *September 2020,* Seminar on "An explicit threshold for the appearance of the lift on the deck of a bridge"
- XLIV Summer school on Mathematicl Physics, Ravello (with full grant) *September 2019,* Seminar on "Modular Energies for Crystal Elasto-Plasticity and Structural Phase Transformations"

PRODUZIONE SCIENTIFICA

PUBBLICAZIONI SCIENTIFICHE

PUBLICATIONS

1. E. Berchio, A. Falocchi, C. Patriarca, On the long-time behaviour of solutions to unforced evolution Navier-Stokes equations under Navier boundary conditions, *Nonlinear Analysis: Real World Applications*, Volume 79, 2024. https://doi.org/10.1016/j.nonrwa.2024.104102

2. F. Gazzola, V. Pata, C. Patriarca, Attractors for a fluid-structure interaction problem with time-dependent phase space, *Journal of Functional Analysis*, Volume 286, Issue 2, 2024. https://doi.org/10.1016/j.jfa.2023.110199.

3. E. Arbib, P. Biscari, C. Patriarca, G. Zanzotto, Ericksen-Landau Modular Strain Energies for Reconstructive Phase Transformations in 2D crystals, Journal of Elasticity, 2023. https://doi.org/10.1007/s10659-023-10023-y

4. C. Patriarca, F. Calamelli, P. Schito, T. Argentini, D. Rocchi, A numerical characterization of the attractor for a fluid-structure interaction problem, Published papaer in Conference Proceedings *EMS Series in Industrial and Applied Mathematics, Interactions between Elasticity and Fluid Mechanics* , 2022. https://doi.org/10.4171/esiam/3

5. C. Patriarca, Existence and uniqueness result for a fluid-structure-interaction evolution problem in an unbounded 2D channel, *NoDEA Nonlinear Differential Equations Appl*. 29 (2022), no. 4, Paper No. 39, 38 pp. https://doi.org/10.1007/s00030-022-00771-6

6. F. Gazzola, C. Patriarca, An explicit threshold for the appearance of lift on the deck of a bridge, *J. Math. Fluid Mech. 24, no. 1, Paper No. 9*, 2022, , https://doi.org/10.1007/s00021-021-00643-6

7. E. Arbib, P. Biscari, L. Bortoloni, C. Patriarca, G. Zanzotto, Crystal elasto-plasticity on the Poincaré half-plane, *International Journal of Plasticity*, 2020, https://doi.org/10.1016/j.ijplas.2020.102728

SUBMITTED PAPERS

1. D. Bonheure, M. Hillairet, C. Patriarca, G. Sperone, Long-time behavior of an anisotropic rigid body interacting with a Poiseuille flow in an unbounded 2D channel, 2024, Preprint, https://arxiv.org/abs/2406.01092

2. C. Patriarca, G. Sperone, Homogenization of Leray's flux problem for the steady-state Navier-Stokes equations in a multiply-connected planar domain, 2023, Preprint, https://arxiv.org/abs/2312.00945

PAPERS IN PREPARATION

1. E. Berchio, M. Garrione, C. Patriarca, Spectral optimization to improve the torsional stability in a non-homogeneous multiply hinged fish-bone model

OTHER WORKS

1. Analysis of some fluid-structure interaction problems in channels, PhD Thesis, Politecnico di Milano, 2023

Data 07/07/2024 Luogo Bruxelles