

ALLEGATO B

UNIVERSITÀ DEGLI STUDI DI MILANO

selezione pubblica per n._1_ posto/i di Ricercatore a tempo determinato ai sensi dell'art.24, comma 3, lettera b) della Legge 240/2010 per il settore concorsuale _02/B2 FISICA TEORICA DELLA MATERIA__ ,

settore scientifico-disciplinare __FIS/03 - FISICA TEORICA DELLA MATERIA__

presso il Dipartimento di __FISICA "ALDO PONTREMOLI"__,

(avviso bando pubblicato sulla G.U. n. 68 del 01/09/2020) Codice concorso 4445

[Nome e cognome] CURRICULUM VITAE

INFORMAZIONI PERSONALI (NON INSERIRE INDIRIZZO PRIVATO E TELEFONO FISSO O CELLULARE)

COGNOME	DANIELI
NOME	CARLO
DATA DI NASCITA	[25, Luglio, 1987]

**INSERIRE IL PROPRIO CURRICULUM
(non eccedente le 30 pagine)**

Personal data:

-Full Name: Carlo Danieli

Date of Birth: 25/07/1987

Place of Birth: Schio (VI) Italy

Citizenship: Italian

Email: cdanieli@pks.mpg.de

Academic background

Current Position:

- Dec. 2019/Now - Research Fellow in the Max Planck Institute for the Physics of Complex Systems (MPI-PKS), Dresden, Germany.
Team leader: Prof. Holger Kantz;

Former Position:

- Feb. 2017/Nov. 2019 - Research Fellow in the Center for Theoretical Physics of Complex Systems (PCS), Institute for Basic Science (IBS), Daejeon, South Korea.
Team leader: Prof. Sergej Flach;

Education:

- Feb. 2013/ Feb. 2017 - PhD student at CTCP/NZIAS, Massey University.
Supervisor: Prof. Sergej Flach;
CoSupervisors: Dr. Joshua D. Bodyfelt, Dist. Prof. Gaven J. Martin.
Thesis: Advances in Classical and Quantum wave Dynamics on Quasiperiodic Lattices
- Oct. 2010/ Jul. 2012 - Master in Mathematics, Padua University; Supervisor: Dr. Antonio Ponno;
Thesis: Energy Localization in DNA Models.
- Oct. 2007/ Sept. 2010 - Bachelor in Mathematics, Padua University; Supervisor: Professor Giancarlo Benettin;
Thesis: The KAM Theorem.

Visiting experiences:

- Erasmus Program at Humboldt Universität zu Berlin (Germany); Period: 2 semesters - Fall 2010 and Summer 2011;
- Center for Theoretical Physics of Complex Systems, Institute for Basic Science, Daejeon (South Korea); First visits: June - August 2015;
Second visit: May - August 2016.

Teaching experiences:

- Systems and Models in the Natural Sciences, held with prof. S. Flach, Massey University, Academic year 2015-2016;
- Physics lab supervisors at Massey University, 5 semesters between 2013 and 2015

Academic background

Areas of expertise:

Quantum many-body dynamics;

Frustration and macroscopically degenerate networks;

Many-body localization;

Thermalization and chaos

Discrete and compact breathers;

Interacting many-body systems;

Ergodicity breaking phenomena;

Nonlinear dynamics;

Weakly non-integrable Hamiltonian systems;

Fano resonances;

Disordered and quasiperiodic lattices;

Anderson localization;

Symplectic Integration for time-evolution of non-integrable systems. \

Active collaborations:

Prof. Sergej Flach, and prof. Alexei Andreanov,

Prof. Mikhail Fistul (Ruhr University Bochum);

Prof. David Campbell (Boston university);

Prof. Zhigang Chen (San Francisco State university and Nankai university);

Prof. Rudo Roemer (Warwick University) and Ms. Jie Liu (Xiangtan University);

Prof. Holger Kantz (MPI-PKS);

Prof. Charampolos Skokos, and mr. Bertin Many Manda (University of Cape Town);

Dr. Giulia Marcucci (University of Ottawa)

Dr. Mithun Thudiyangal (University of Amherst Massachusetts);

Dr. Stefano Iubini (University of Padua);

Computational Skills:

Fortran90, C++, Mathematica, Phyton.

Editorial activities:

Guest editor of a [Special Issue on Non-Ergodicity in dynamical systems](#) for the journal Chaos, Solitons and Fractals jointly with Dr. Stefano Iubini (University of Padua), Dr. Mithun Thudiyangal (PCS-IBS), Prof. Antonio Politi (University of Aberdeen) and A.Prof. Wojciech De Roeck (Catholic University of Leuven)

Referral activities:

Physical Review X, Physical Review Letter, Physical Review B, Physical Review E, Europhysics Letters, Chaos, Physics Letters A, Journal of Nonlinear Science

Awards:

Best poster award at "Quantization of dissipative chaos: ideas and means", Physikzentrum Bad Honnef 2019

EPL distinguished referee 2017;

INMS Postgraduate Conference 2014 winner (best talk).

Language:

Italian (native), English (proficient), Korean (beginner).

References:

Prof. Sergej Flach - s.flach@ibs.re.kr

Prof. David K. Campbell - dkcampbe@bu.edu

Prof. Holger Kantz: - kantz@pks.mpg.de

Bibliometric data:

H-index: 10

H-index10: 10

Citazioni totali: 312

Fonte, google scholar (data: 15/03/2021)

Link: <https://scholar.google.com/citations?user=ciOfxQgAAAAJ&hl=en>

Publication List

Published:

1. **C. Danieli**, A. Andreanov, and S. Flach
Many-body flat band localization
[Phys. Rev. B 102, 041116\(R\) \(2020\)](#)
2. **C. Danieli**, and T. Mithun
Casting dissipative compact states in coherent perfect absorbers
[Phys. Rev. Research 2, 013054 \(2020\)](#)
3. S. Xia, **C. Danieli**, W. Yan, D. Li, S. Xia, J. Ma, H. Lu, D. Song, L. Tang, S. Flach, and Z. Chen
Observation of quincunx-shaped and dipole-like flat band states in photonic rhombic lattices without band- touching
[APL Photonics 5 016107 \(2020\)](#)
4. **C. Danieli**, B. Many Manda, T. Mithun, and Ch. Skokos
Computational efficiency of numerical integration methods for the tangent dynamics of many-body Hamiltonian systems in one and two spatial dimensions
[Math. in Eng. 1\(3\): 447-488, \(2019\)](#)
5. **C. Danieli**, T. Mithun, Y. Kati, D.K. Campbell, and S. Flach
Dynamical glass in weakly non-integrable Klein-Gordon chains
[Phys. Rev. E 100, 032217 \(2019\)](#)
6. T. Mithun, **C. Danieli**, Y. Kati, and S. Flach
Dynamical glass phase and ergodization times in Josephson junction chains
[Phys. Rev. Lett. 122, 054102 \(2019\)](#)
7. T. Mithun, Y. Kati, **C. Danieli**, and S. Flach
Weakly nonergodic dynamics in the Gross-Pitaevskii lattice
[Phys. Rev. Lett. 120, 184101 \(2018\)](#)
8. **C. Danieli**, A. Maluckov, and S. Flach
Compact discrete breathers on flat band networks
[Low Temperature Physics 44, 865 \(2018\)](#)
9. **C. Danieli**, D.K. Campbell, and S. Flach
Intermittent many-body dynamics and equilibrium
[Phys. Rev. E 95, 060202\(R\) \(2017\)](#)

10. H. Hatami, **C. Danieli**, J. D. Bodyfelt, and S. Flach
Quasiperiodic driving of Anderson localized waves in one dimension
[Phys. Rev. E 93, 062205 \(2016\)](#)
11. **C. Danieli**, J. D. Bodyfelt, and S. Flach
Flat band engineering of mobility edges
[Phys. Rev. B 91, 235134 \(2015\)](#)
12. **C. Danieli**, K. Rayanov, B. Pavlov, G. Martin, and S. Flach
Approximating metal-insulator transitions
[Int. J. of Mod. Phys. B 29, 1550036 \(2015\)](#)
13. J. D. Bodyfelt, D. Leykam, **C. Danieli**, X. Yu, and S. Flach
Flat bands under correlated perturbations
[Phys. Rev. Lett. 113, 236403 \(2014\)](#)
14. L. Morales-Molina, E. Doerner, **C. Danieli**, and S. Flach
Resonant metallic states in driven quasiperiodic lattices: Aubry-Andre localization by design
[Phys. Rev. A 90, 043630 \(2014\)](#)

Book chapters:

1. A. Ramachandran, **C. Danieli**, and S. Flach
Fano resonances in flat band networks
[Fano resonances in optics and microwaves, Springer series in optical sciences 219 \(2018\)](#)

Submitted:

1. **C. Danieli**, A. Andreanov, T. Mithun, and S. Flach
Nonlinear caging in All-Bands-Flat Lattices
[arXiv:2004.11871 \(2020\)](#)
Under consideration in Physical Review B
2. **C. Danieli**, A. Andreanov, T. Mithun, and S. Flach
Quantum Caging in Interacting Many-Body All-Bands-Flat Lattices
[arXiv:2004.11880 \(2020\)](#)
Under consideration in Physical Review B
3. T. Mithun, **C. Danieli**, M.V. Fistul, B.L. Altshuler, and S. Flach
Fragile many body ergodicity
[arXiv:2006.07179 \(2020\)](#)
Under consideration in Physical Review E - Letter

In preparation:

1. **C. Danieli**, and A. Andreanov
Compact breather generator in one-dimensional nonlinear networks
2. **C. Danieli**, A. Andreanov, and S. Flach
Many-body localization transition from flatband fine-tuning
3. I. Vakuylychuk, **C. Danieli**, A. Andreanov, and S. Flach
Percolation transitions in interacting many-body flatband systems
4. **C. Danieli**, A. Andreanov, and S. Flach
Flatband finetuning (Review article)

Unpublished:

1. S. Flach, and C. Danieli
Comment on "Metal-insulator transition in an aperiodic ladder network: an exact result" [arXiv:1402.2742 \(2014\)](#)

Miscellaneous:

1. C. Danieli, T. Mithun, Y. Kati, and S. Flach
[Freezing upon heating: the formation of dynamics glass](#)
Press release for "Phys. Rev. Lett. 122 054102 (2019)"
2. E. Hook, with the contribution of C. Danieli, and S. Flach
[Breaking laws, making glass](#)
Physics buzz issue for "Phys. Rev. Lett. 120, 184101 (2018)"
3. C. Danieli, L. Diamante, and S. Flach
[Breaking laws, making glass](#)
Press release for "Phys. Rev. Lett. 120, 184101 (2018)"

Selected contributions at international scientific events:

Invited talks:

1. Dynamics Days Asia Pacific Division (2020) — Singapore (Online format)
Talk title: Thermalization of weakly non-integrable many-body systems
2. Frontiers of Physics symposium — Asia Pacific Center for Theoretical Physics, Pohang, South Korea (2019)
Talk title: Dynamical glass and ergodization times in weakly non-integrable systems
3. American physical society March meetings (2019) — Boston, USA
Talk title: The subtle road to equipartition - or not?
4. International workshop on disordered systems: from localization to thermalization and topology (2018) — PCS- IBS, Daejeon, South Korea
Talk title: Dynamical glass.

Invited research seminars:

1. Theoretical physics seminars at University of Warwick and Cergy University (2020) — Warwick (UK) and Paris, France (Online format)
Talk title: From Single to Many Body Flatband Localization
2. Center for Theoretical Physics of Complex Systems (2020) — PCS-IBS, Daejeon, South Korea
Talk title: Caging of short-range interactions in all bands flat lattices

Contributed talks:

1. International workshop on ergodicity breaking in many body systems (2018) — IIP Natal, Brazil
Talk title: From intermittent to glassy dynamics in weakly non-integrable hamiltonian systems.
2. Scientific gathering: Boris Chirikov, a pioneer of dynamical chaos (2018) — CIC Cuernavaca, Mexico
Talk 1 title: Compact discrete breathers in flat band networks
Talk 2 title: Intermittent equilibrium dynamics in many-body systems
3. European physical society March meetings (2018) — Berlin, Germany
Talk title: Weakly non-ergodic dynamics in many-body systems
4. American physical society March meetings (2018) — Los. Angeles, USA
Talk title: Compact discrete breathers in flat band networks

5. International Symposium on Intrinsic Localized Modes: 30th Anniversary of Discovery (2018) — Kyoto, Japan
Talk title: Nonlinear compact periodic solutions in flat band networks
6. International workshop on discrete, nonlinear and disordered optics (2017) — MPI-PKS Dresden, Germany
Talk title: Quasiperiodic driving of Anderson localized waves in one dimension;
Poster title: flat band engineering of mobility edges.

Data

15/03/2021

Luogo

Dresda