

Details

Current position: **Postdoctoral researcher** at the Sapienza Universit`a di Roma
Advisor: Prof. Roberto Di Leonardo

Education

- 03.2016 – 12.2019 **PhD Student** in Physics
University of Barcelona (Spain)
PhD Advisor: Prof. Pietro Tierno
Title: Out-of-equilibrium dynamics in driven and active magnetic colloids
Graduation date: 11.12.2019
Qualification: *Cum Laude* and Mention of International Doctor.
- 06.2018 – 08.2018 **Visiting PhD student**
University of Bayreuth (Germany)
Advisor: Prof. Thomas M. Fischer
- 09.2014 – 02.2016 **Master in Nanoscience and Nanotechnology**
University of Barcelona (Spain)
- 09.2009 – 06.2014 **Bachelor in Physics**
University of Barcelona (Spain)

Publications

- Emergent collective colloidal currents generated via exchange dynamics in a broken dimer state
[H. Massana-Cid](#), A. Ortiz-Ambriz, A. Vilfan and P. Tierno. *Science Advances* **6**, (2020) eaaz2257
- Field synchronized bidirectional current in confined driven colloids
F. Meng, A. Ortiz-Ambriz, [H. Massana-Cid](#), A. Vilfan, R. Golestanian, and P. Tierno. *Physical Review Research* **2**, (2020) 012025(R)
- Tunable self-healing of magnetically propelling colloidal carpets
[H. Massana-Cid](#), F. Meng, D. Matsunaga, R. Golestanian, and P. Tierno. *Nature Communications* **10**, (2019) 2444
- Leap-frog transport of magnetically driven anisotropic colloidal rotors
[H. Massana-Cid](#), E. Navarro-Arquemí, D. Levis, I. Pagonabarraga, and P. Tierno. *The Journal of Chemical Physics* **150**, (2019) 164901
- Edge transport at the boundary between topologically equivalent lattices
[H. Massana-Cid](#), A. Ernst, D. De Las Heras, A. Jarosz, M. Urbaniak, F. Stobiecki, A. Tomita, R. Huhnstock, I. Koch, A. Ehresmann, D. Holzingerd and T. M. Fischer. *Soft Matter* **15** (2019) 1539-1550
- Active apolar doping determines novel routes to colloidal clusters and gels
[H. Massana-Cid](#), J. Codina, I. Pagonabarraga, and P. Tierno. *Proceedings of the National Academy of Sciences* **115**, (2018) 10618-10623
- Propulsion and hydrodynamic particle transport of magnetically twisted colloidal ribbons
[H. Massana-Cid](#), F. Martinez-Pedrero, E. Navarro-Arquemí, I. Pagonabarraga and P. Tierno. *New Journal of Physics* **19** (2017) 103031
- Orientational dynamics of fluctuating dipolar particles assembled in a mesoscopic colloidal ribbon
[H. Massana-Cid](#), F. Martinez-Pedrero, A. Cebers and P. Tierno. *Physical Review E* **96** (2017) 012607
- Assembly and transport of microscopic cargos via reconfigurable photoactivated magnetic microdockers
F. Martinez-Pedrero, [H. Massana-Cid](#) and P. Tierno. *Small* **13** (2017) 1603449

10. Bidirectional particle transport and size selective sorting of Brownian particles in a flashing spatially periodic energy landscape.

F. Martinez-Pedrero, H. Massana-Cid, T. Ziegler, T. H. Johansen, A. V. Straube and P. Tierno. *Physical Chemistry Chemical Physics* **18** (2016) 26353

Conferences, Workshops and Schools

- 5th International Soft Matter Conference (ISMC2019) *June 3-7, 2019. Edinburgh (United Kingdom)* - Oral presentation.
- XXVI Sitges Conference on Statistical Mechanics. *May 27-31, 2019. Sitges (Spain)* - Poster presentation.
- Winter School Motile Active Matter: Nanomachines, Microswimmers, and Swarms, *February 25-March 1, 2019. Ju'lich (Germany)* - Poster presentation.
- XXII Congreso de Física Estadística (FisEs'18), *October 18-20, 2018. Universidad Politécnica de Madrid (Spain)* Poster presentation.
- International Conference of GRK 1558 (NECD18), *October 8-11, 2018. Potsdam (Germany)* - Oral presentation.
- Joint meeting of the DPG and EPS Condensed Matter Divisions, *March 11-16, 2018. Technische Universität Berlin (Germany)* - Poster presentation.
- Flowing Matter, *February 5-9, 2018. University of Lisbon (Portugal)* - Oral presentation.
- Dynamics of Self-Organization: from colloids to biomaterials, *December 4-5, 2017. University of Barcelona (Spain)* Poster Presentation
- 9th International Conference Engineering of Chemical Complexity. *June 19 -22, 2017. Ne`apolis Auditorium, Vilanova i la Geltru' (Spain)* - Poster Presentation
- Dynamics of Interfaces in Complex Fluids and Complex Flows. *February 27 - May 3, 2017. Kreuz+Quer, Erlangen (Germany)* - Poster Presentation

Teaching Activities

- Biophysics course (Practical problems sessions)
University of Barcelona, Bachelor in Biomedical Sciences Spring
term 2017-2018

Other Talks and Outreach events

- University of Barcelona Seminars
Dynamics and hydrodynamic particle transport in a magnetically driven colloidal ribbon (February 23rd 2018)
Frustrated lattice of confined magnetic colloids obtained through a rotationally driven nematic dimer phase (February 10th 2017)
- Diversity in the Cultures of Physics Summer School Sheffield-Manchester-Barcelona 2019 Divulgative lecture, July 23 2019, Espai Mallorca, Barcelona (Spain)
- Encontres amb el tercer cicle
Divulgative lecture for Bachelor students, September 2019, University of Barcelona (Spain)

Additional Work Experience

08.2014 – 01.2016 Laboratory technician at *Soluciones Electrostaticas S.L*

09.2013 – 08.2014 Internship at *Soluciones Electrostaticas S.L*