



YANN-EDWIN KETA


Postdoctoral researcher


-  November 1995
-  French/EU citizen
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-  yketa.xyz
-  github.com/yketa


Education

2020-2023
PhD in Physics
Université de Montpellier 
Under the joint supervision of
Ludovic Berthier and Robert L. Jack.

2016-2018
MSc in Physics *High honours*
École normale supérieure de Lyon 
Specialisation in computational
physics, soft matter, and statistical
physics.



2015-2016
BSc in Physics *High honours*
École normale supérieure de Lyon 

2013-2015
**Classes préparatoires aux grandes
écoles (PCSI/PC*)**
Lycée Lakanal, Sceaux 

2018-2019 (Gap year)
MA in Social sciences *1st year*
École normale supérieure de Lyon 

Skills

Programming

Python , C/C++, GNU/Linux , Git,
symbolic computation (SageMath),
HTML/JS/CSS, \LaTeX .

Molecular dynamics, parallelisation
on CPU and GPU (OpenMP, HOOMD),
biased path ensemble algorithms.

Languages

Français (French) – Native speaker 
English – Fluent 
Nederlands (Dutch) – Beginner 

Interests


- * Extreme music.
- * Free software, open knowledge.
- * Environment protection.
- * French and non-French literature.

Research

Oct 2023 **Postdoc: “Computational models of cell sheets”**
- Present Instituut-Lorentz for Theoretical Physics,
Universiteit Leiden 

Supervisor: Silke Henkes



Sep 2020 **PhD: “Emergence of disordered collective motion in
dense systems of isotropic self-propelled particles”**
- Sep 2023

Laboratoire Charles Coulomb, UMR 5221 CNRS,
Université de Montpellier 
Simons collaboration on *Cracking the Glass Problem*

Supervisors: Ludovic Berthier (Montpellier),
Robert L. Jack (Cambridge)




ENS-funded internships

Oct 2019 **“Active work in systems of self-propelled particles”**
- July 2020 Department of Applied Mathematics and Theoretical Physics,
University of Cambridge 
Laboratoire Matière et Systèmes Complexes, UMR 7057 CNRS,
Université de Paris 


Supervisors: Robert L. Jack, Michael E. Cates (Cambridge),
Frédéric van Wijland (Paris)



Jan 2018 **“Simple model of active particles”**
- Jul 2018 Stewart Blusson Quantum Matter Institute,
University of British Columbia 

Supervisor: Jörg Rottler





May 2017 **“Numerical analysis of jamming criticality for
spheroidal particles”**
- Jul 2017 Institutionen för fysik, Umeå universitet 


Supervisor: Peter Olsson





Publications


Y.-E. Keta and S. Henkes, “Long-range order in two-dimensional systems
with fluctuating active stresses”, *arXiv* (2024) [DOI:10.48550/arXiv.2410.14840].
 arXiv:2410.14840


Y.-E. Keta*, J. U. Klamser*, R. L. Jack, and L. Berthier, “Emerging Mesoscale Flows and
Chaotic Advection in Dense Active Matter”, *Physical Review Letters* **132**, 218301 (2024)
[DOI:10.1103/PhysRevLett.132.218301].  arXiv:2306.07172

Y.-E. Keta, R. Mandal, P. Sollich, R. L. Jack, and L. Berthier, “Intermittent relaxation and
avalanches in extremely persistent active matter”, *Soft Matter* **19**, 3871–3883 (2023)
[DOI:10.1039/D3SM00034F].  arXiv:2212.09836

Y.-E. Keta, R. L. Jack, and L. Berthier, “Disordered collective motion in dense
assemblies of persistent particles”, *Physical Review Letters* **129**, 048002 (2022)
[DOI:10.1103/PhysRevLett.129.048002].  arXiv:2201.04902



Y.-E. Keta, É. Fodor, F. van Wijland, M. E. Cates, and R. L. Jack, “Collective mo-
tion in large deviations of active particles”, *Physical Review E* **103**, 022603 (2021)
[DOI:10.1103/PhysRevE.103.022603].  arXiv:2009.07112

Y.-E. Keta and P. Olsson, “Translational and rotational velocities in shear-
driven jamming of ellipsoidal particles”, *Physical Review E* **102**, 052905 (2020)
[DOI:10.1103/PhysRevE.102.052905].  arXiv:2006.05305

T. Marschall, Y.-E. Keta, P. Olsson, and S. Teitel, “Orientational Ordering in Athermally
Sheared, Aspherical, Frictionless Particles”, *Physical Review Letters* **122**, 188002 (2019)
[DOI:10.1103/PhysRevLett.122.188002].  arXiv:1806.01739

Y.-E. Keta and J. Rottler, “Cooperative motion and shear strain correlations in dense
2D systems of self-propelled soft disks”, *EPL* **125**, 58004 (2019) [DOI:10.1209/0295-
5075/125/58004].


Conferences

- Oct 2024 **Journées de la Matière Condensée (Condensed Matter Days)**
Aix-Marseille Université, Marseille 
Contributed talk, "Fluctuations in dense active matter".
- Apr 2024 **Interdisciplinary challenges in non-equilibrium physics: from soft to active, biological and complex matter**
Max-Planck-Institut für Physik komplexer Systeme, Dresden 
Invited talk, "Fluctuations in dense active matter".
- Jan 2024 **NWO Physics**
NH Koningshof, Veldhoven 
Contributed talk, "Disordered collective motion in dense and persistent active matter".
- Dec 2023 **Computational Advances in Active Matter**
Lorentz Center, Universiteit Leiden 
Invited short contribution, "How do dense systems of large-persistence self-propelled particles relax?".
- Dec 2022 **Active days EUTOPIA, Challenges in Active Matter**
CY Cergy Paris University 
Contributed talk, "Disordered collective motion in dense and very persistent active matter".
- Jun 2022 **Active & Intelligent Living Matter Conference**
Erice, Sicily 
Poster.
- Feb 2022 **Edwards Centre for Soft Matter Mini-Conference**
University of Cambridge 
Contributed talk, "Disordered collective motion in dense assemblies of persistent particles".
- Mar 2021 **APS March Meeting**
Online 
Contributed talk, "Collective motion in large deviation of active particles".




Refereeing

- * Nature Communications
- * Physical Review E
- * Scientific Reports
- * SciPost
- * Soft Matter

Responsibilities

- 2023 **Co-organisation of the "Smart, Living, and Active Matter" seminar**
- Present Universiteit Leiden 
Hosts international speakers between 1 and 4 times a month.

Teaching

- 2024 **"Statistical Physics" (master's level)**
Universiteit Leiden 
Teaching assistant.
- 2022 **"Physics for life sciences", "Python for sciences" (bachelor's level)**
Université de Montpellier 
Teaching assistant.
- 2018-2019 **Oral interrogator (Physics, Chemistry, Mathematics)**
2016-2017 Lycée du Parc, Institution des Chartreux, Lycée La Martinière Diderot (Lyon) 
- 2015 **Volunteer tutor (Physics, Chemistry, Mathematics)**
- 2017 ENSeigner association, École normale supérieure de Lyon 