Kerwann Tep

Curriculum Vitae

Positions

2023–2025 **Postdoctoral research associate post-doctoral**, UNC at Chapel Hill, USA.
Supervisor: Prof. Carl Rodriguez.
Activities: Implementation in C of resonant relaxation effects in galactic centers; creation of a basis functions expansion/Monte-Carlo code written in C++ for the study of globular clusters; development of theoretical models, their numerical implementation and scientific calculation.

Education

2020–2023 **PhD in Theoretical Astrophysics**, Institut d'Astrophysique de Paris, France.
Secular evolution of stellar systems
Supervisors: C. Pichon, J.-B. Fouvry
Funded by the École Doctorale Astronomie et Astrophysique d'Ile de France.
Activities: Development of theoretical models; numerical implementation and high performance scientific calculus; numerical simulations (NBODY6++GPU) and post-treatment of large quantities of data on a cluster.

2018–2019 **Université Bourgogne-Franche-Comté**, Besançon, France.
License of Mathematics: Very Good.
Remote lessons.

2017–2020 **Université Paris-Saclay**, Orsay, France.
License of Physics: Very Good.
Master 1 of Physics: Very Good.
Master 2 of Physics (iCFP, specialization Theoretical physics): Very good.
Magistère de physique fondamentale: Very good.

2015–2017 **Lycée Henri IV**, Paris, France.
Classes Préparatoires PCSI, PC*. Accepted at Centrale-Supelec.

Research experience

04/20 – 06/20 **Institut d'Astrophysique de Paris**, France.
Probing the Galactic center's cluster with scalar resonant relaxation
3-month Master 2 internship in Astrophysics supervised by C. Pichon and J.-B. Fouvry.

04/19 – 07/19 **University of Cambridge (DAMTP)**, UK.
Describing self-gravitating systems with the quantum-classical correspondence
3-month Master 1 internship in Astrophysics supervised by Cora Uhlemann.

06/18 – 08/18 **Royal Observatory of Edinburgh**, UK.
Linear response theory for a thin self-gravitating galactic disk
8-week License internship in Astrophysics surpervised by C. Pichon.

Involvment in research program

2020–present Member of the international collaboration SEGAL (ANR)

Peer-reviewed publications

Journals

[6] **K. Tep**, C. Pichon & M. S. Petersen. *Linear response of rotating and flattened stellar clusters: the oblate Kuzmin–Kutuzov Stäckel family*. ApJ 986, 203 (2025).

[5] **K. Tep**, J.-B. Fouvry & C. Pichon. *Non-resonant relaxation of rotating globular clusters* . A&A 689, A126 (2024).

[4] M. Petersen, M. Roule, J.-B. Fouvry, C. Pichon & **K. Tep**. *Predicting the linear response of self-gravitating stellar spheres and discs with LinearResponse.jl*. MNRAS 530, 4378 (2024).

[3] **K. Tep**, J.-B. Fouvry & C. Pichon. *Non-resonant relaxation of anisotropic globular clusters*. MNRAS 514, 875 (2022).

[2] J. Reddish, K. Kraljic, M. S. Petersen, **K. Tep** *et al*. *The NewHorizon simulation - to bar or not to bar*. MNRAS 512, 160 (2022).

[1] **K. Tep**, J.-B. Fouvry, C. Pichon, Gernot Heißel, Thibaut Paumard, Guy Perrin, Frederic Vincent. *Mapping the Galactic centre's dark cluster via Resonant Relaxation*. MNRAS 506, 4289 (2021).

Scientific presentations

05/2025 *Stability of (rotating) flattened Stäckel systems*, Teeminar

02/2025 *Orbit-averaged Chandrasekhar theory for rotating globular clusters*, Teeminar

06/2024 *Orbit-averaged Chandrasekhar theory in globular clusters*, KITP, Santa Barbara

05/2024 *The stability of flattened systems*, IAP, Paris

01/2023 *The gravo-thermal relaxation of isotropic or rotating clusters*, KITP, Santa Barbara

01/2022 *Non-resonant relaxation of anisotropic globular clusters*, IAP, Paris

02/2021 *Probing the Galactic center with Scalar Resonant relaxation*, IAP, Paris

Teaching and student supervision

2024–2025 **Research supervisor**, *UNC at Chapel Hill*, Chapel Hill.
Task: Supervise research activities of an undergraduate student (PHYS 395)

2019–2020 **Oral examiner**, *Lycée Henri IV*, Paris.
Task: Provide graded mathematics tutorial sessions for PCSI students

Skills and Languages

Script Julia, Python, Mathematica, bash

Compilation C/C++, CUDA-C, OpenMP/MPI, Fortran

Simulations `NBODY6++GPU`

Languages French (Native), English (C2, TOEIC 2023: 990/990)