

Kerwann Tep

Curriculum Vitae

Positions

- 2025–present **Postdoctoral researcher**, Observatoire Astronomique de Strasbourg, France.
Supervisor: Prof. Dominique Aubert.
Activities: Development in C and post-treatment of numerical simulations on the reionization epoch; utilization of kokkos/GPU architecture and computing clusters.
- 2023–2025 **Postdoctoral research associate**, UNC at Chapel Hill, USA.
Supervisor: Prof. Carl L. 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 supervised by C. Pichon.

Involvement in research program

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

Peer-reviewed publications

- Journals [7] **K. Tep**, B. T. Cook, C. L. Rodriguez, J. Jolly, E. Sawin, M. S. Petersen & C. Gaffud. *KRIOS: A new basis-expansion N -body code for collisional stellar dynamics*. ApJ 993, 180 (2025).
- [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

- 12/2025 *Exploring the linear stability of flattened disks using Stäckel systems*, ObAS, Strasbourg
- 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)