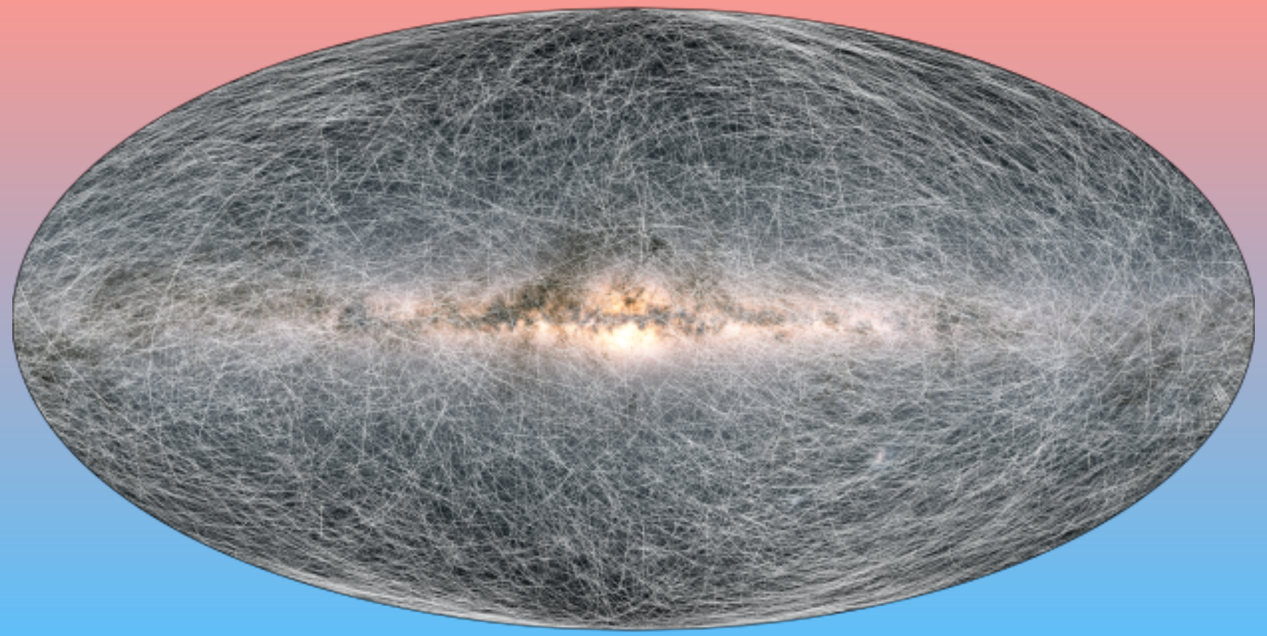
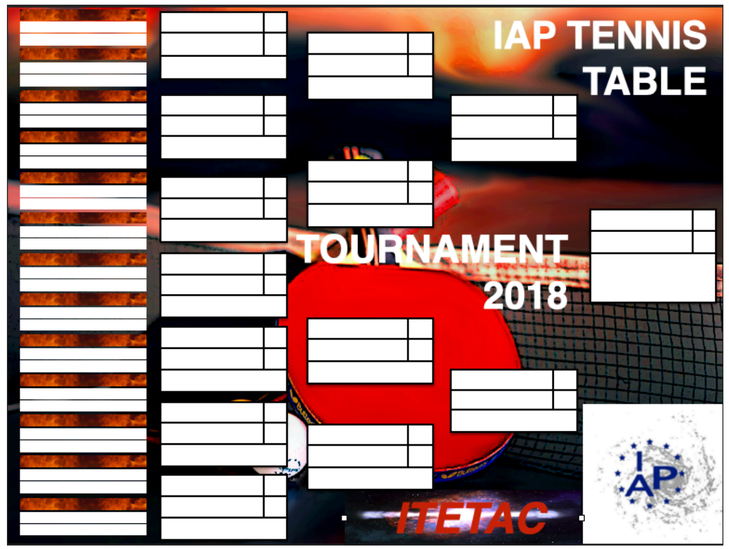


Pierre Boldrini

Postdoc
(Founder and president of the ITETAC)



14/10/2021 - Galaxy Day

Background

Research positions

Institut d'Astrophysique de Paris — **France**
Postdoc — *2021–Present*

Johns Hopkins University, Baltimore — **USA**
Visiting Researcher, with Prof. Emanuele Berti, — *October–November 2019*

IPMU, Tokyo — **Japan**
Visiting Researcher, with Prof. Sugiyama, — *March 2018*

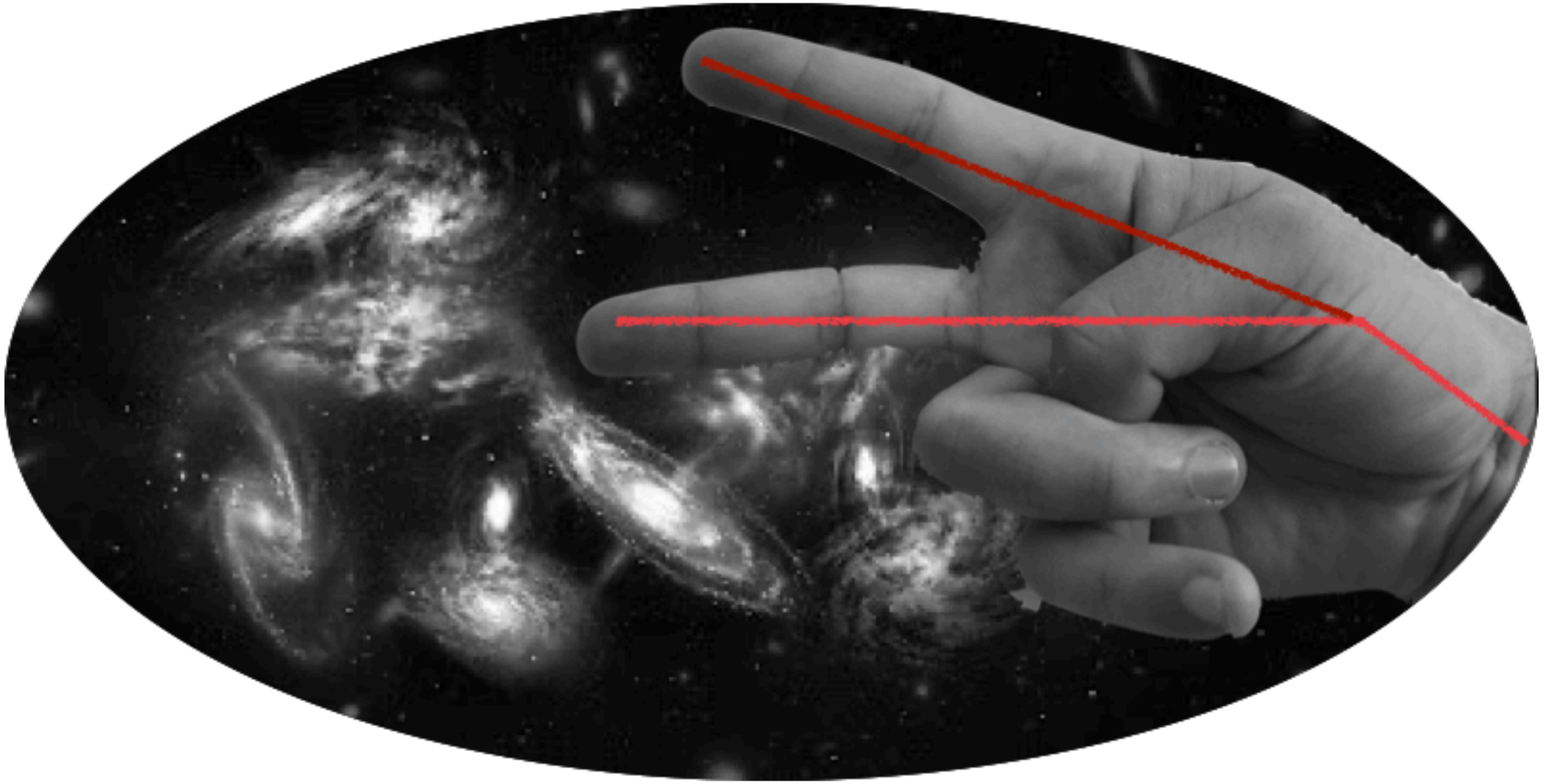
Institut d'Astrophysique de Paris — **France**
PhD student at Sorbonne Université, — *2017–2020*

Education

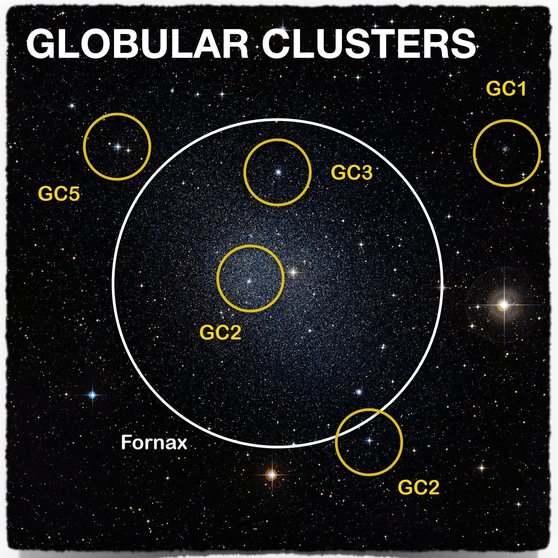
- **Institut d'Astrophysique de Paris** — **France**
  PhD in Astrophysics (The cusp-core problem in dwarf galaxies: New solutions), — *2017–2020*
  Sorbonne Université
  Doctoral Advisors: Dr Roya Mohayaee and Prof. Joseph Silk,

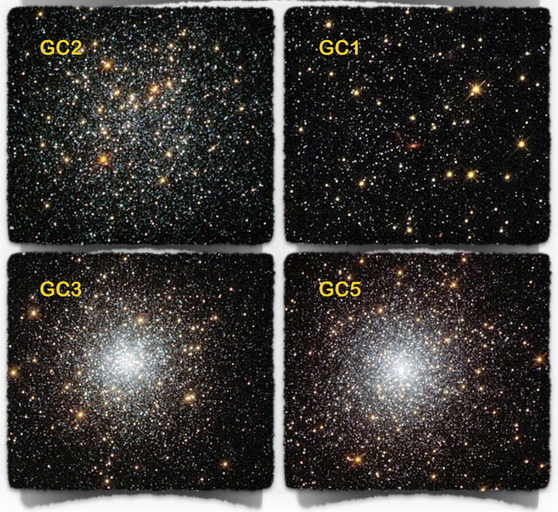
- **Ecole Normale Supérieure de Lyon (ENS)** — **France**
  MSc "Physique, concepts et applications", — *2014–2017*

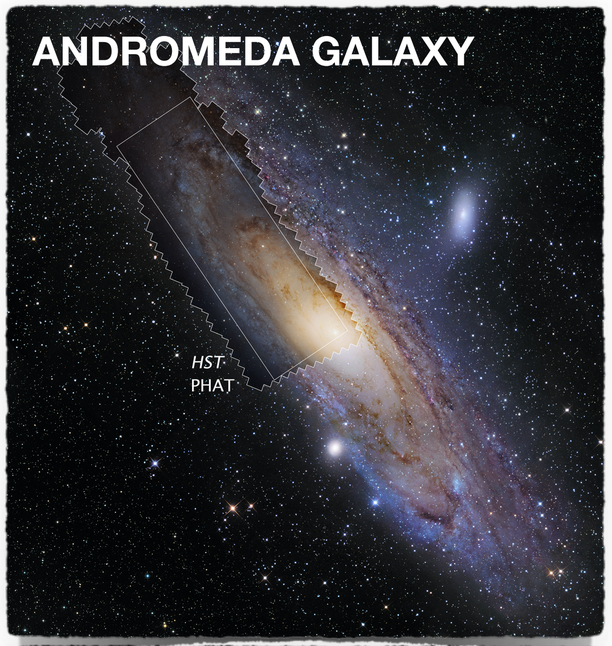
MY THESIS IN 2s

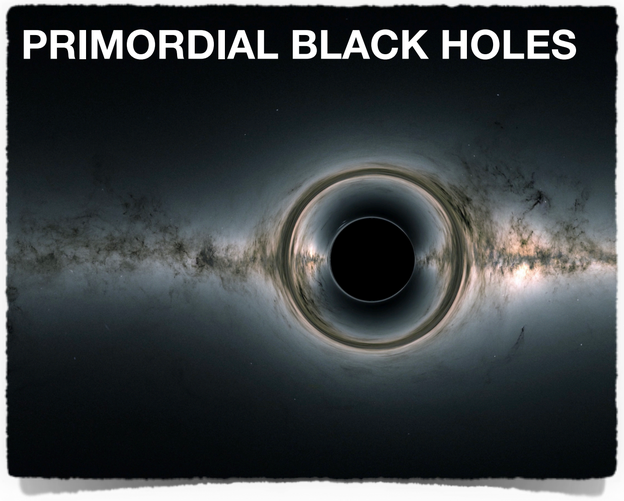


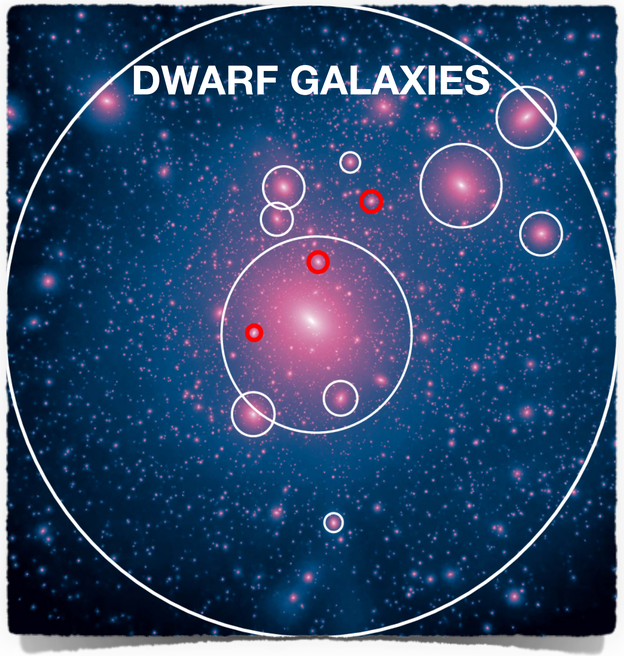
Research Topics

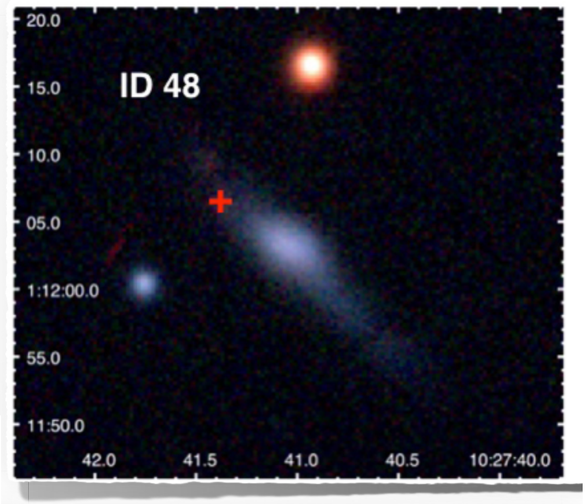


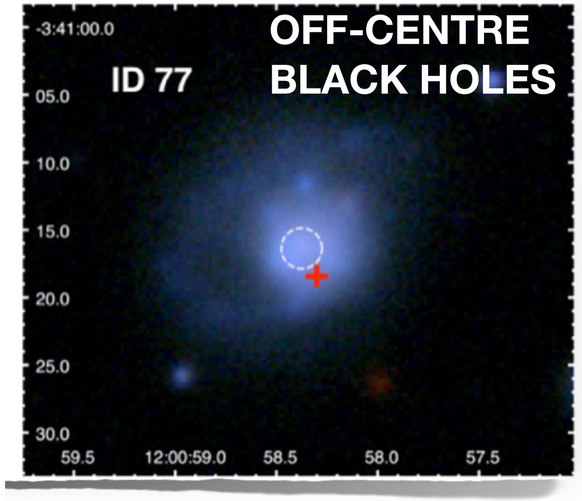












Expertise

N-body simulations

COLLISIONLESS

GADGET

(Springel+05)

COLLISIONAL

Nbody6

(Aarseth+99)

GPU N-body simulations

Collisionless N-body Code + GPU = **G**ravitational **O**ct- **T**ree code accelerated by **Hi**erarchical time step **C**ontrolling

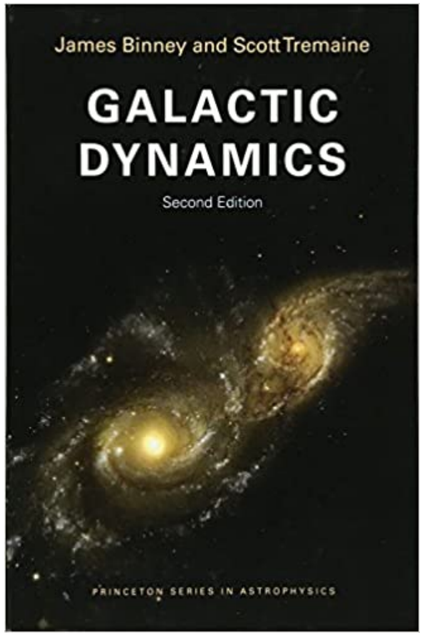
(Miki+17)

Orbital integration method

galpy

(Bovy+15)

Galactic dynamics



Collaborators (1/3): Europe

l'Observatoire de Paris — LERMA
Laboratoire d'Étude du Rayonnement et de la Matière en Astrophysique

David Valls-Gabaud

ROYAL OBSERVATORY EDINBURGH

Jorge Peñarrubia

David A. Dunlap Department of Astronomy & Astrophysics
UNIVERSITY OF TORONTO

Jo Bovy

IAP

Eduardo Vitral

Globular cluster dynamic team

Collaborators (2/3): USA

Milky Way dynamic team

Mike Boylan-Kolchin

THE UNIVERSITY OF TEXAS AT AUSTIN

JOHNS HOPKINS UNIVERSITY

Joe Silk

Black hole dynamic team

MIT KAVLI INSTITUTE

Mark Vogelsberger

Aline Chu

IAP

Collaborators (3/3): Local

David Valls-Gabaud

Joe Silk

Roya Mohayaee

Bruno Lévy

M31 team

Optimal transport team

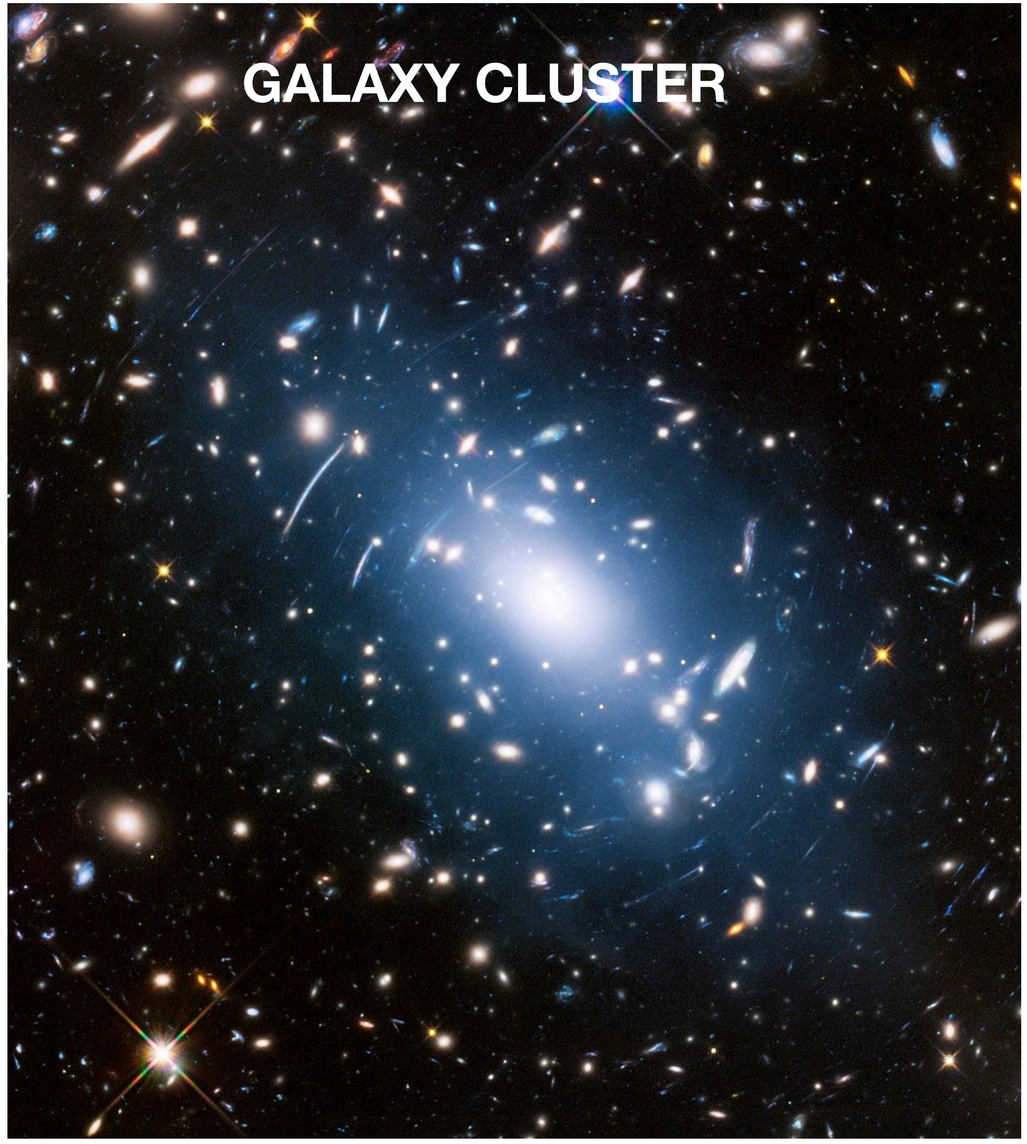
Collaborations

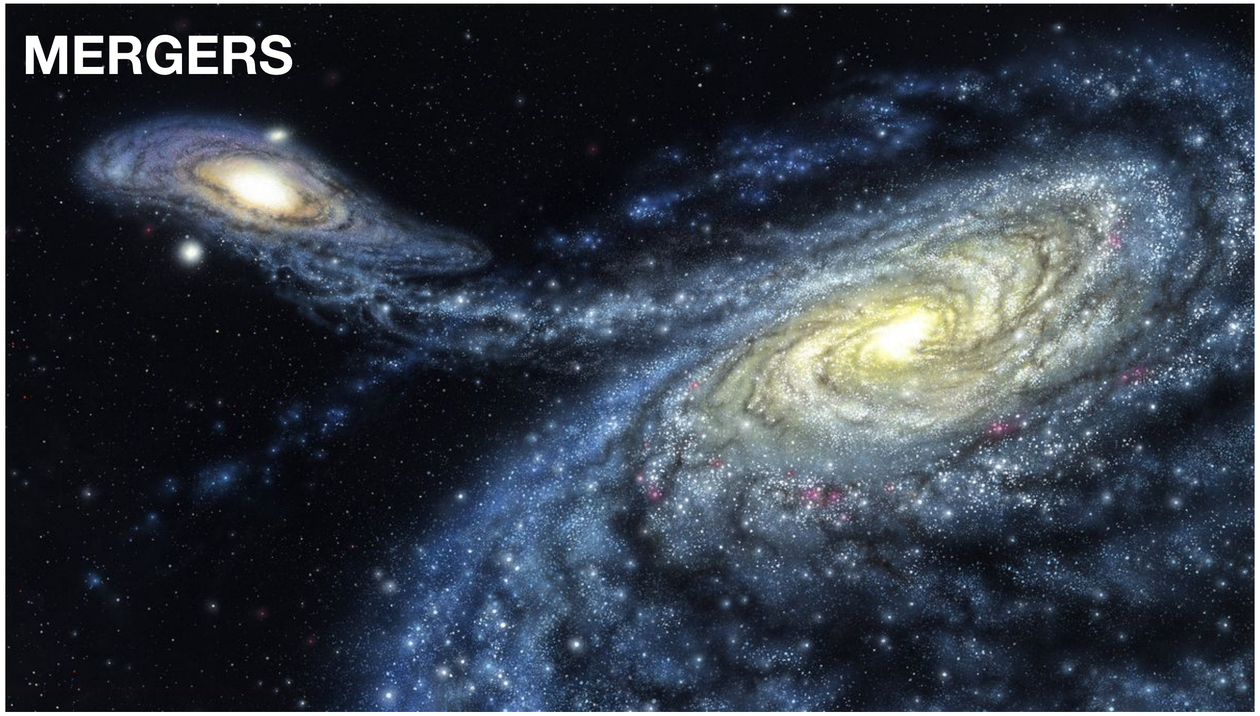
lisa

gaia

?

Current work (1/2)

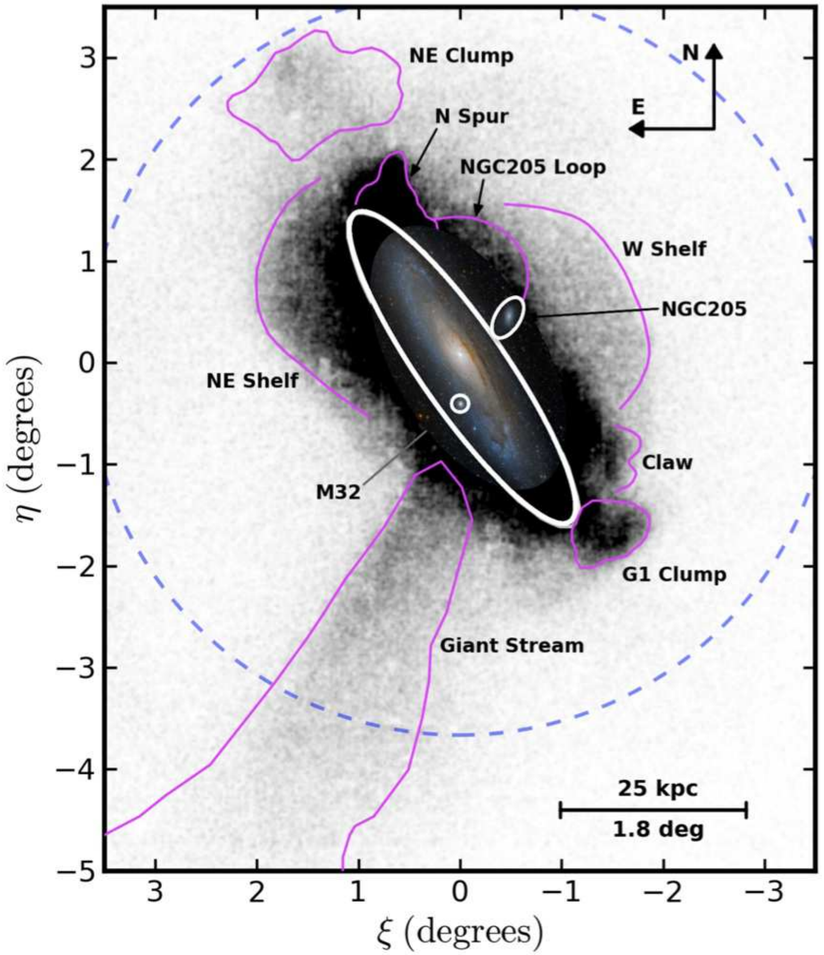




(Chu+21 in prep)

Current work (2/2)

ANDROMEDA OR M31



(Boldrini+21)

THE MILKY WAY

(Boldrini+21 in prep)

ASTROPHYSICS ONLINE

Pierre Boldrini

Postdoctoral researcher at Institut d'Astrophysique de Paris

About me | Astro news | Research | Publications | Contact

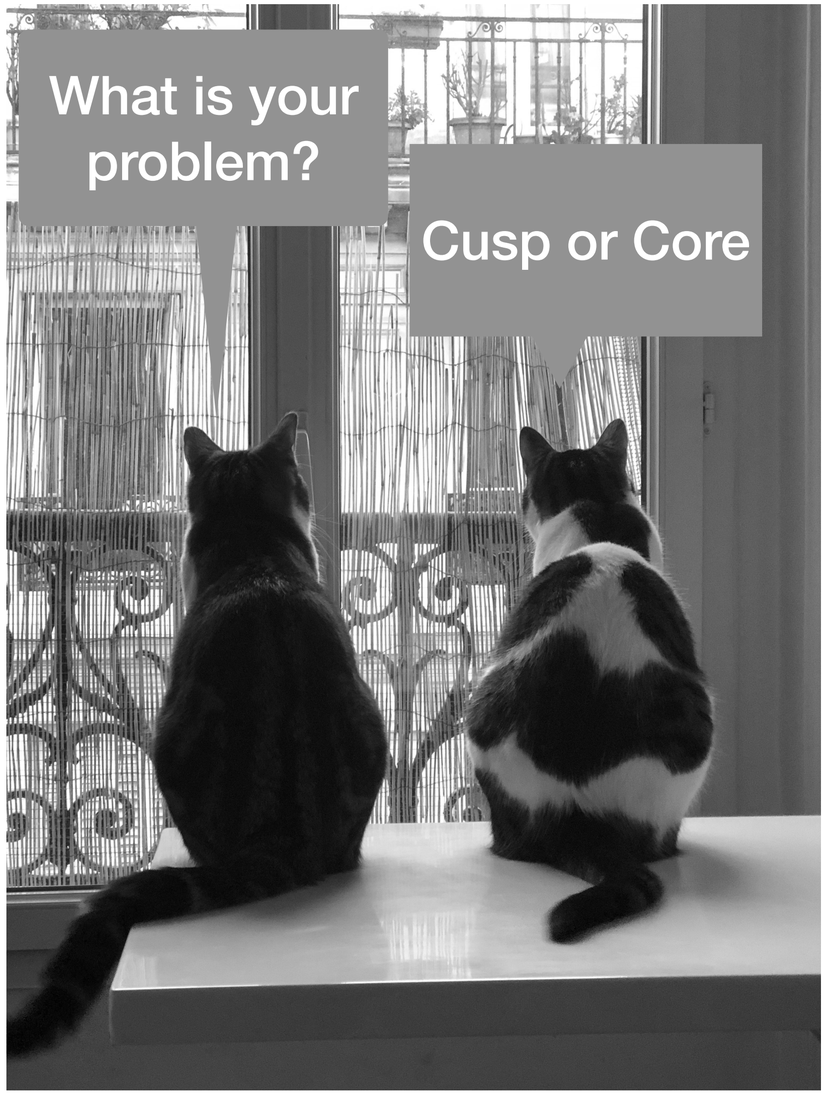
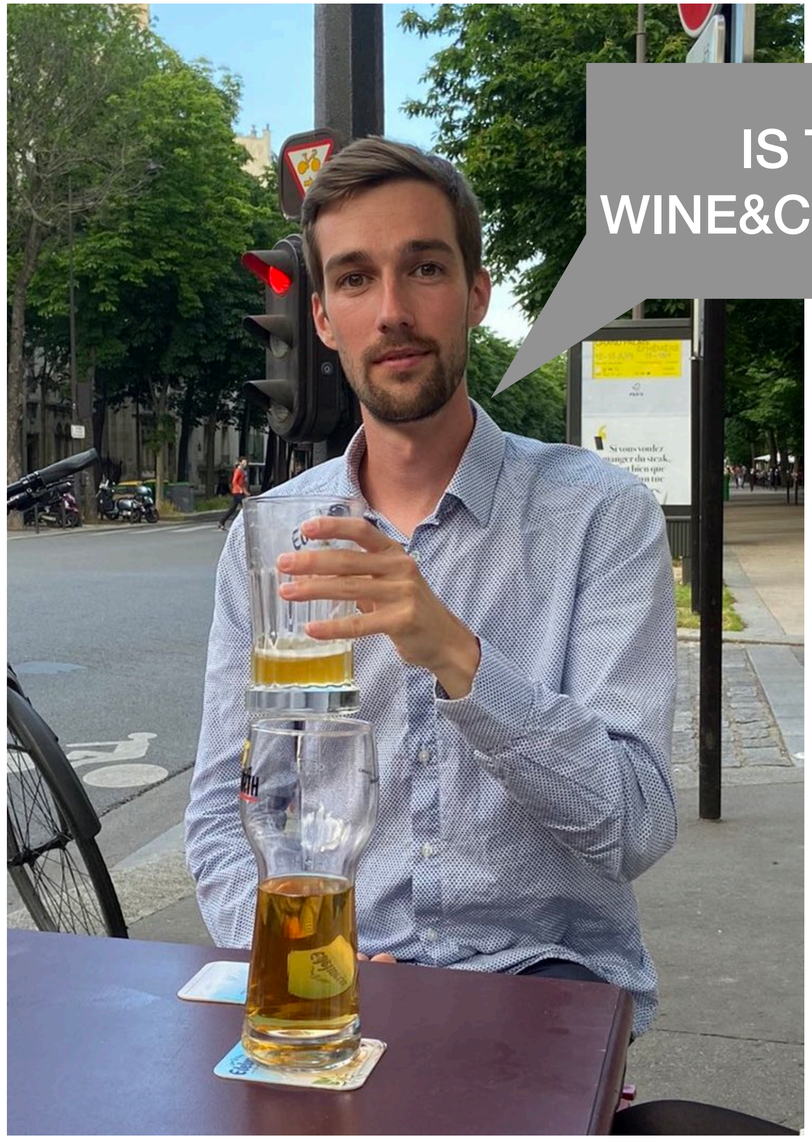
About me

I'm currently postdoc at the **Institut d'Astrophysique de Paris (IAP)**. I use computational methods to study the evolution and dynamics of galaxies in order to reproduce observational data highlighted by the **Gaia mission**.

My doctoral research at IAP focused on the nature of the dark matter and more particularly on the inconsistency of inner DM density profiles in dwarf galaxies, known as the **cusp-core problem**. I perform simulations with the high performance collisionless N-body code, **Gothic**. This gravitational octree code runs entirely on GPU with adaptive time steps. My high resolution approach is the pathway to high resolution that is far beyond that of any cosmological simulation.

My work on globular clusters will be also pursued in the context of the **Laser Interferometer Space Antenna (LISA)** mission. Since January 2019, I am involved in a LISA working group with the primary motivation to explore the existence of intermediate massive black holes in globular clusters.

https://www.iap.fr/useriap/boldrini/

Not comfortable on the internet?

QUESTIONS??????????????????????????