Nordita open door
Research in the Astrophysics group

Sambit Giri

20 November 2023

Members

- Axel Brandenburg
- Bengt Gustafsson
- Lars Mattsson
- Beatriz Villarroel
- Sambit Giri
- Nikhil Sarin
- Kyrylo Bondarenko
- Yutong He
- Nousaba Protiti
- Abdullah Sheriff
- ...

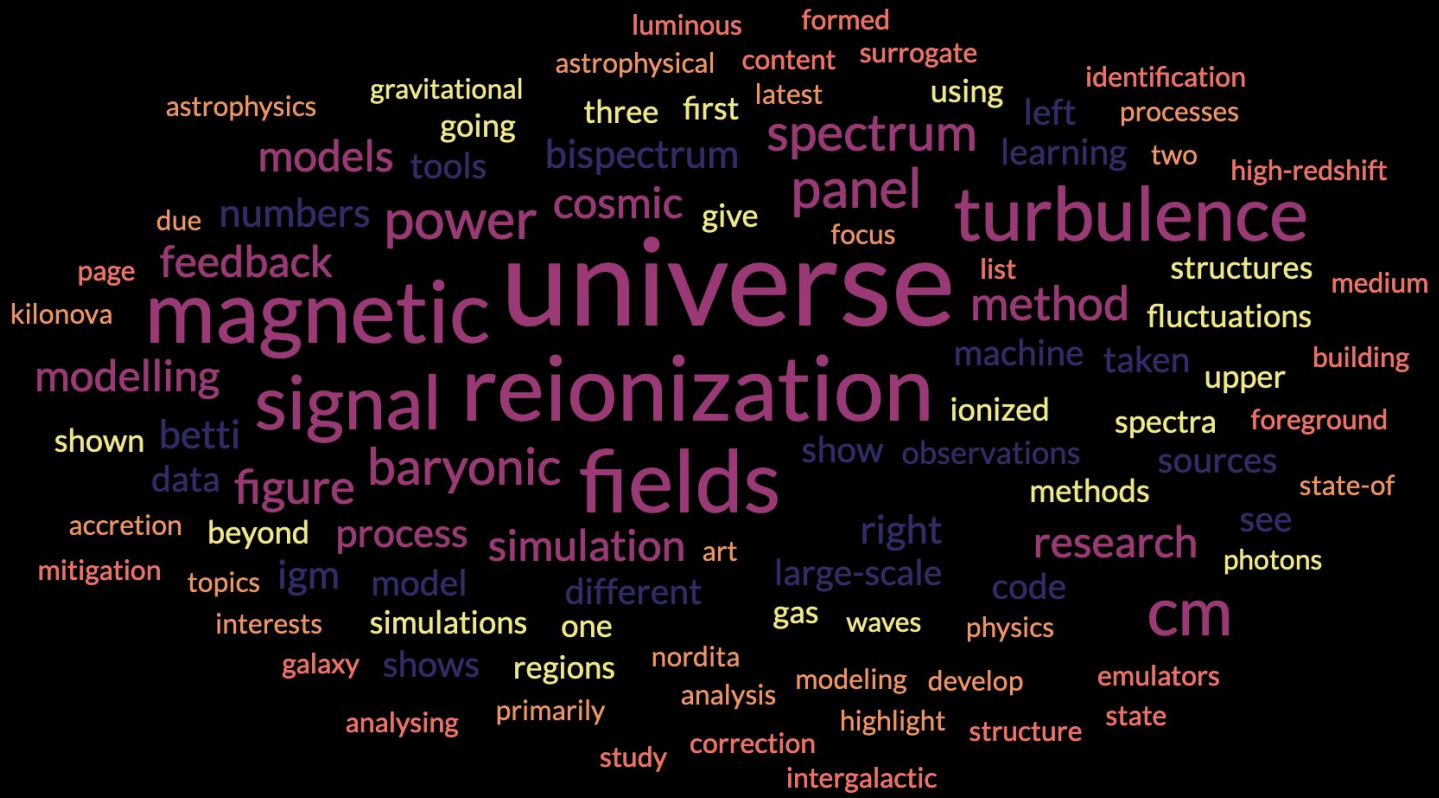
Current Visitors

- Wendy Wallace (University of Bath)
- Aurora Capobianco (University of Bath)
- Clara Dehman (Universitat Autònoma de Barcelona)

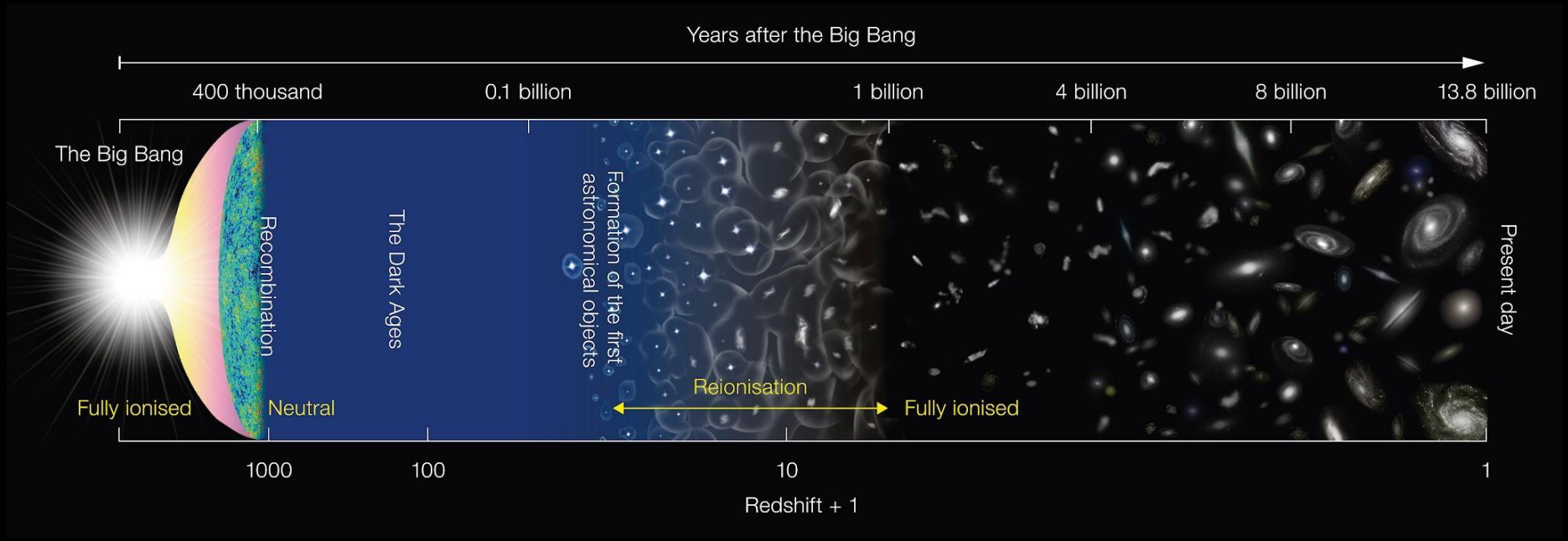
Upcoming Visitors

- Michele Bianco (EPF Lausanne)
- Timothee Schaeffer (University of Zurich)
- Naoki Yoshida (University of Tokyo)
- ...

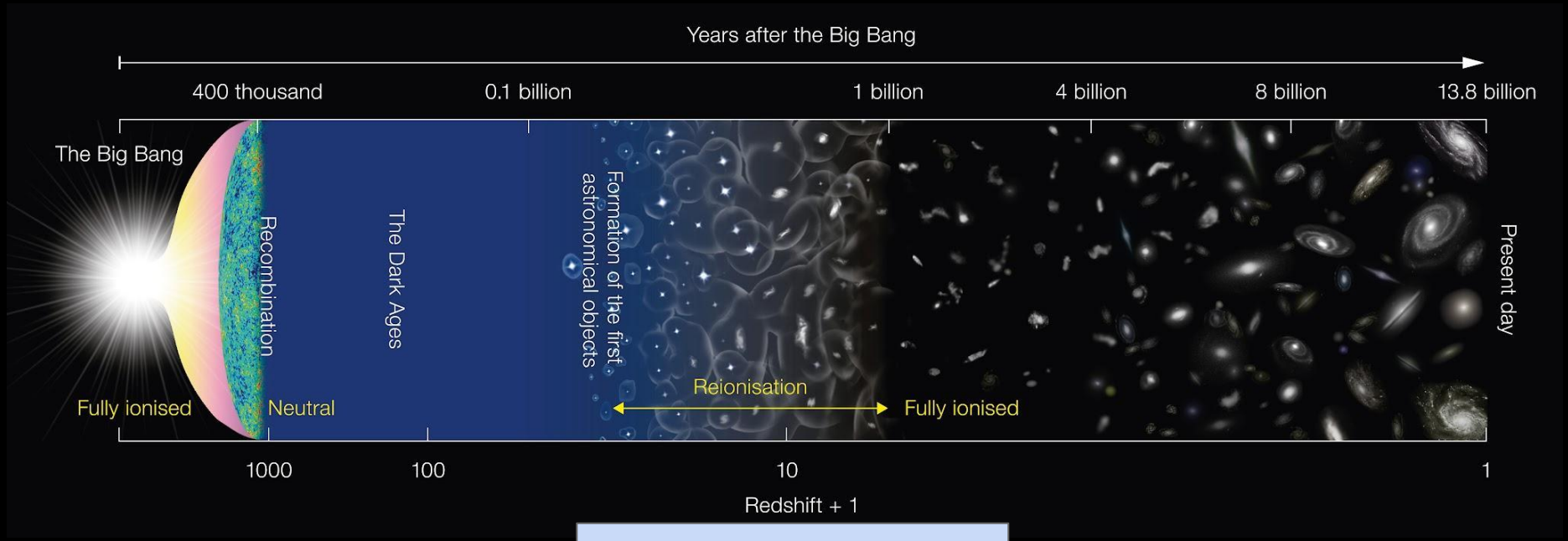
Research Topics



History of our Universe

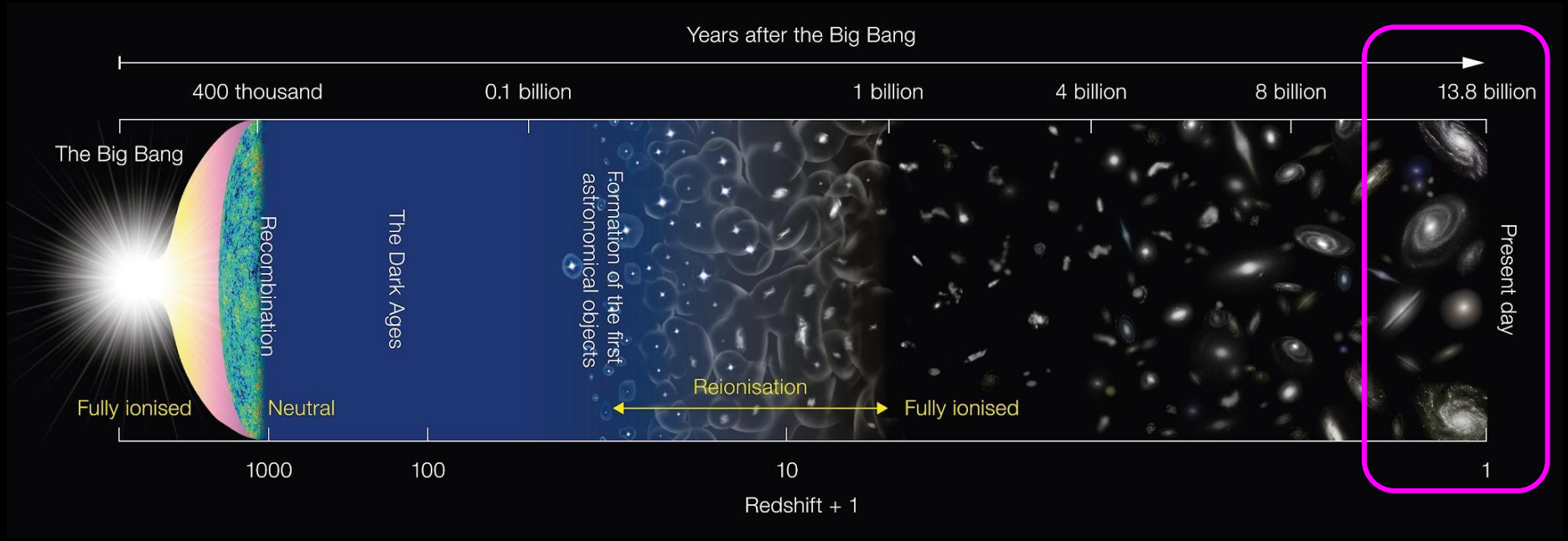


How do we study this history?

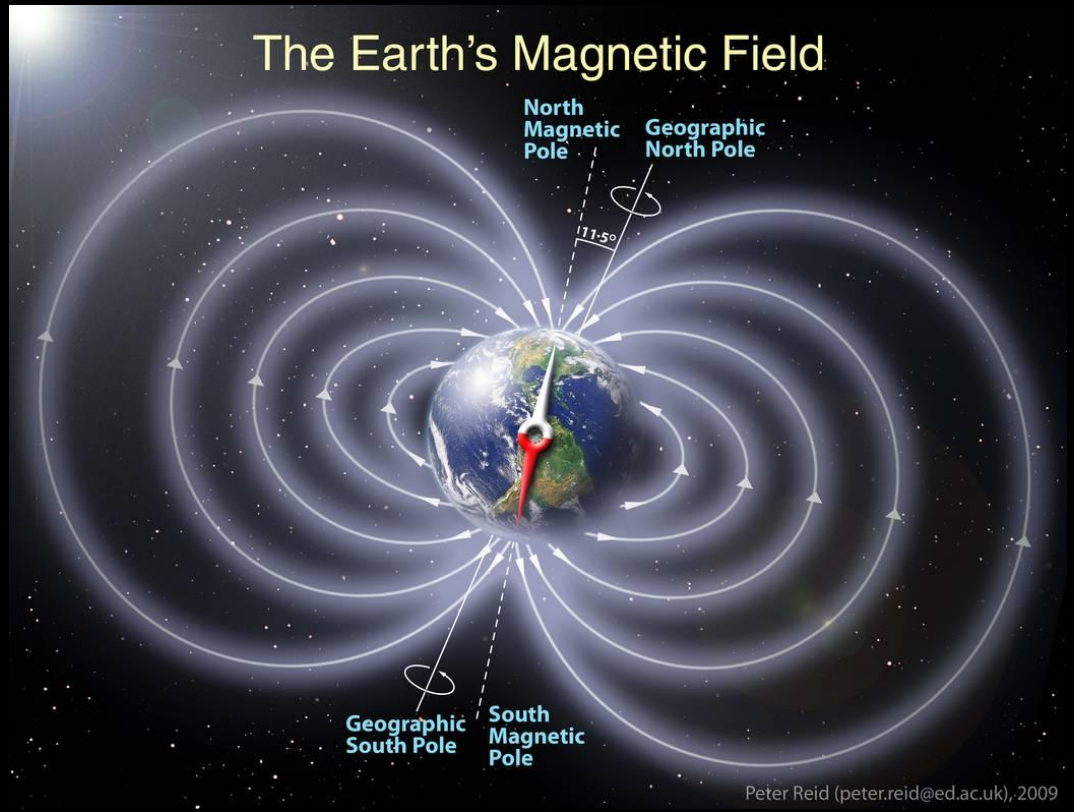


- **Photons**
- **Gravitational Waves**

Modern Universe



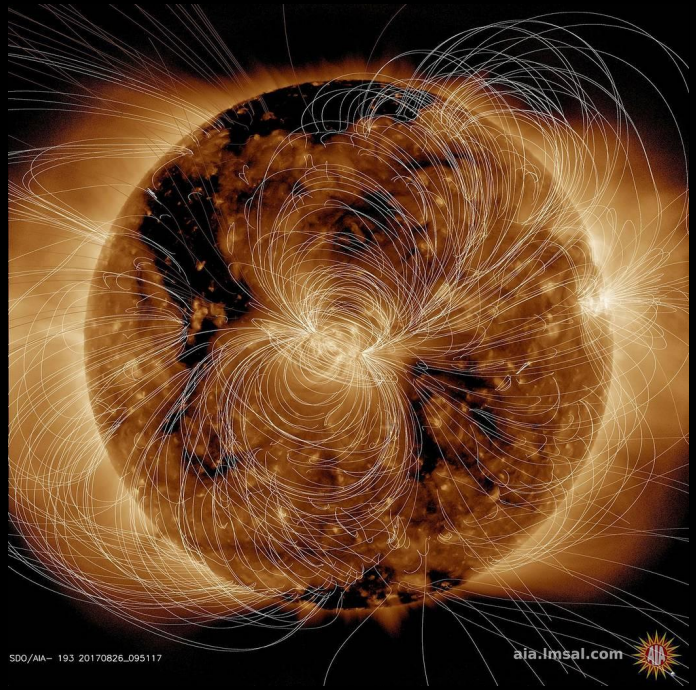
Magnetic fields

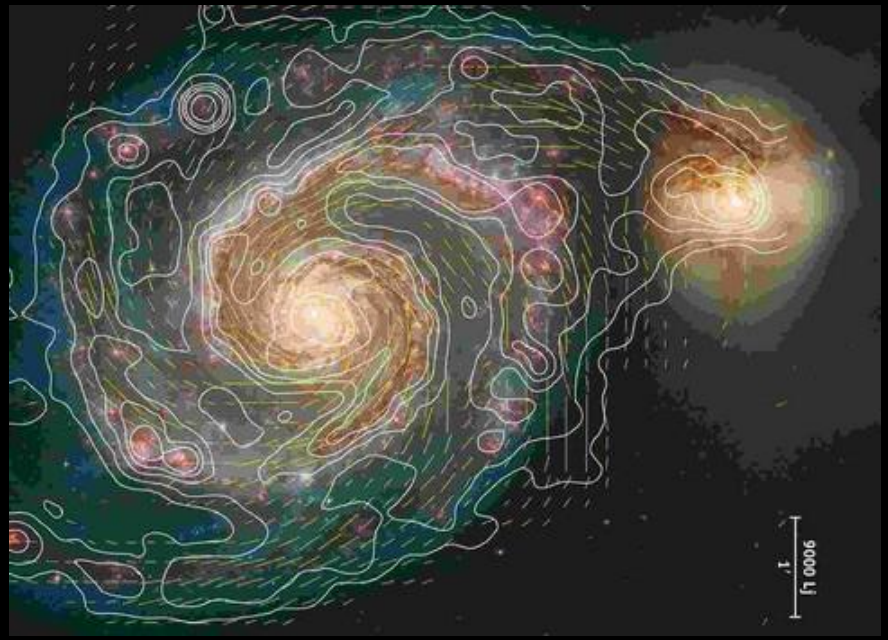


Astrophysical magnetic fields

Kyrylo Bondarenko

Axel Brandenburg



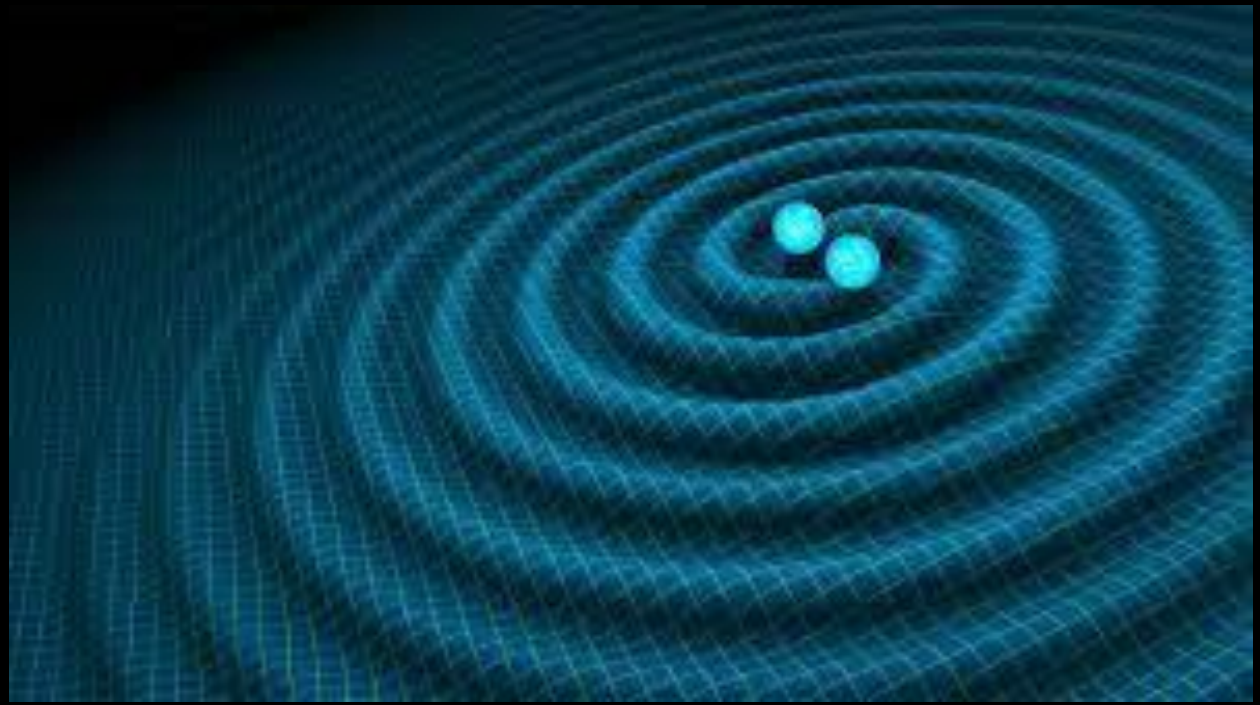


Kilonova - merging neutron stars

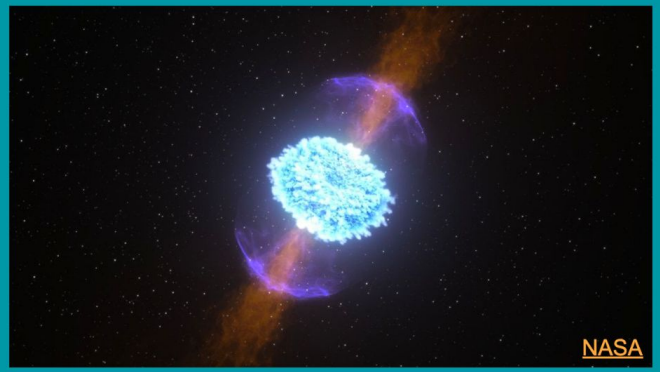
Nikhil Sarin

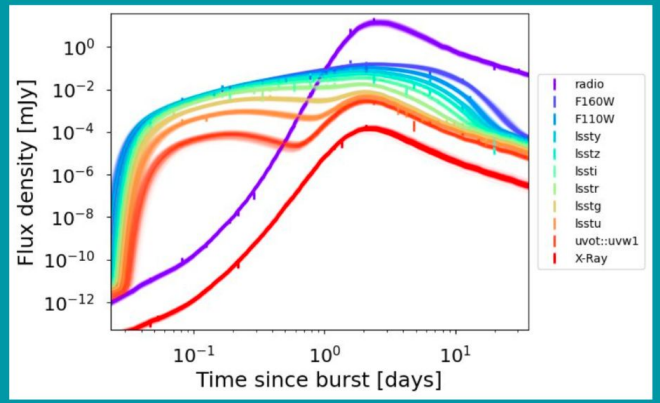
Axel Brandenburg

Wendy Wallace

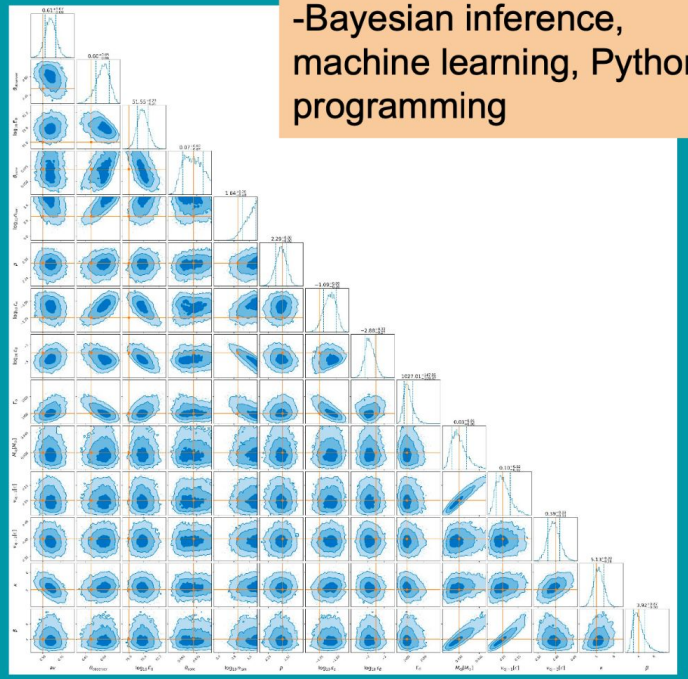


Disentangling kilonova and afterglow signal





Kilonova + Afterglow Modelling
-Bayesian inference, machine learning, Python programming



Wendy Wallace

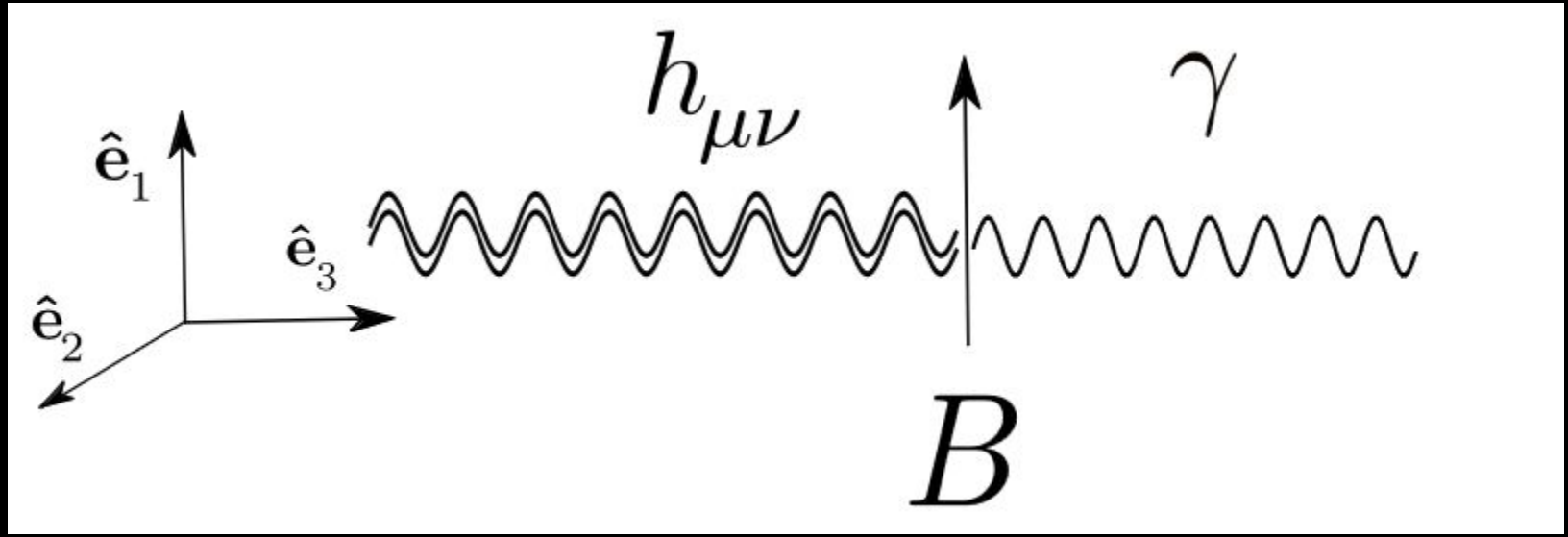
Graviton-photon conversion due to magnetic fields


Yutong He

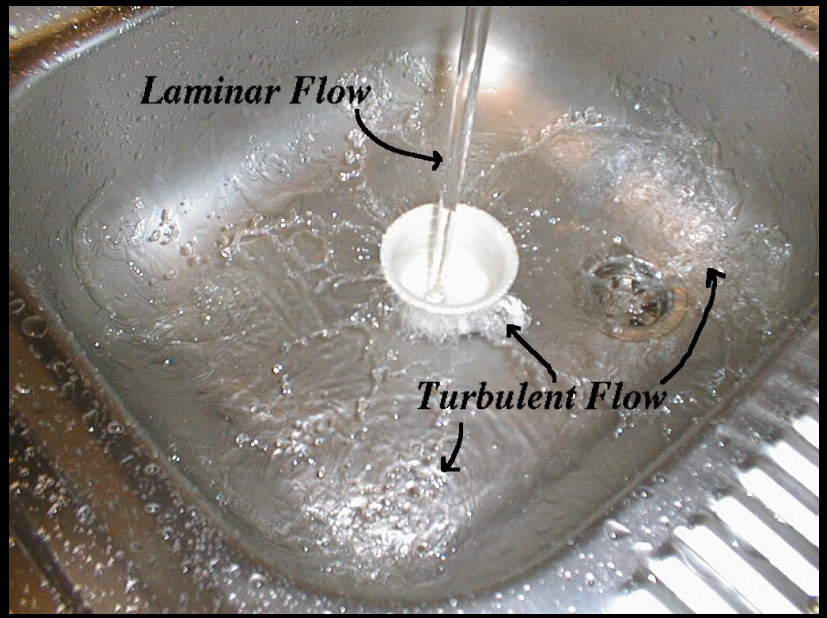

Ramkishor Sharma


Sambit Giri


Axel Brandenburg



Turbulence



Joseph Werne's lecture on turbulence

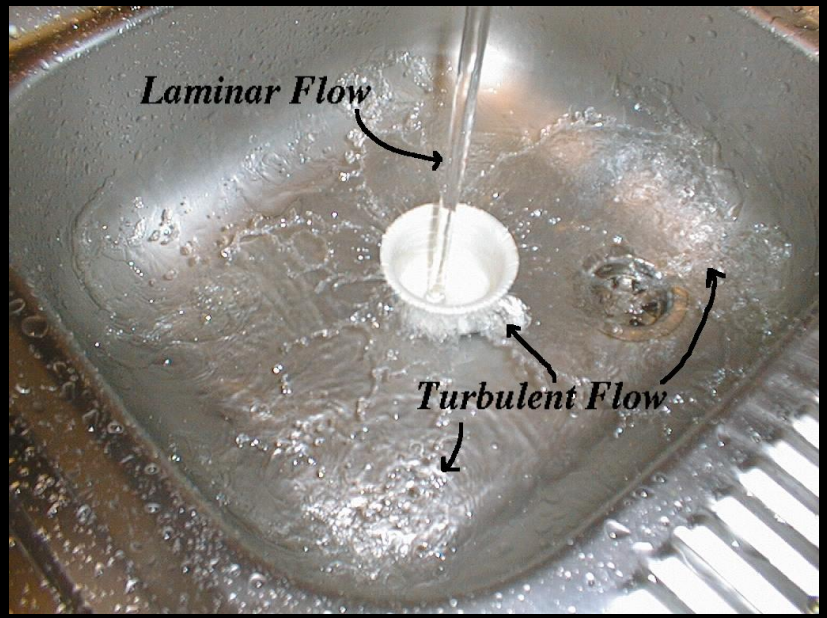
Astrophysical Turbulence

Axel Brandenburg

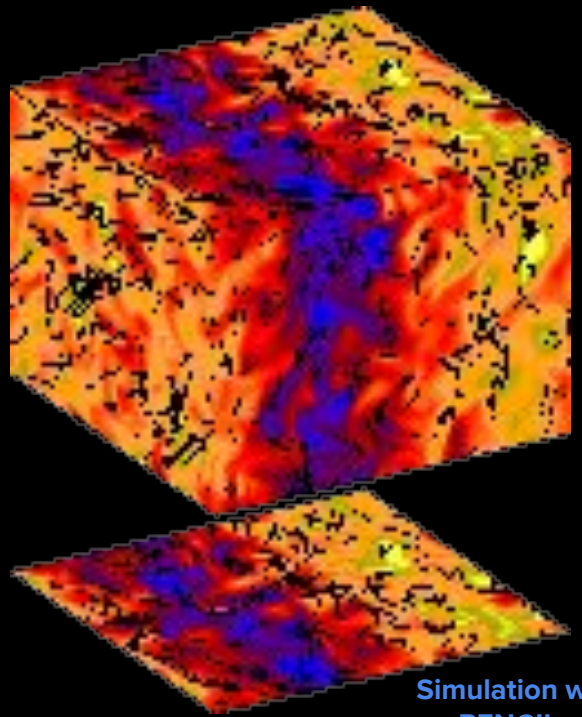
Dhrubaditya Mitra

Lars Mattsson

Aurora Capobianco



Joseph Werne's lecture on turbulence



Simulation with the PENCIL code

Understanding the content of our Universe

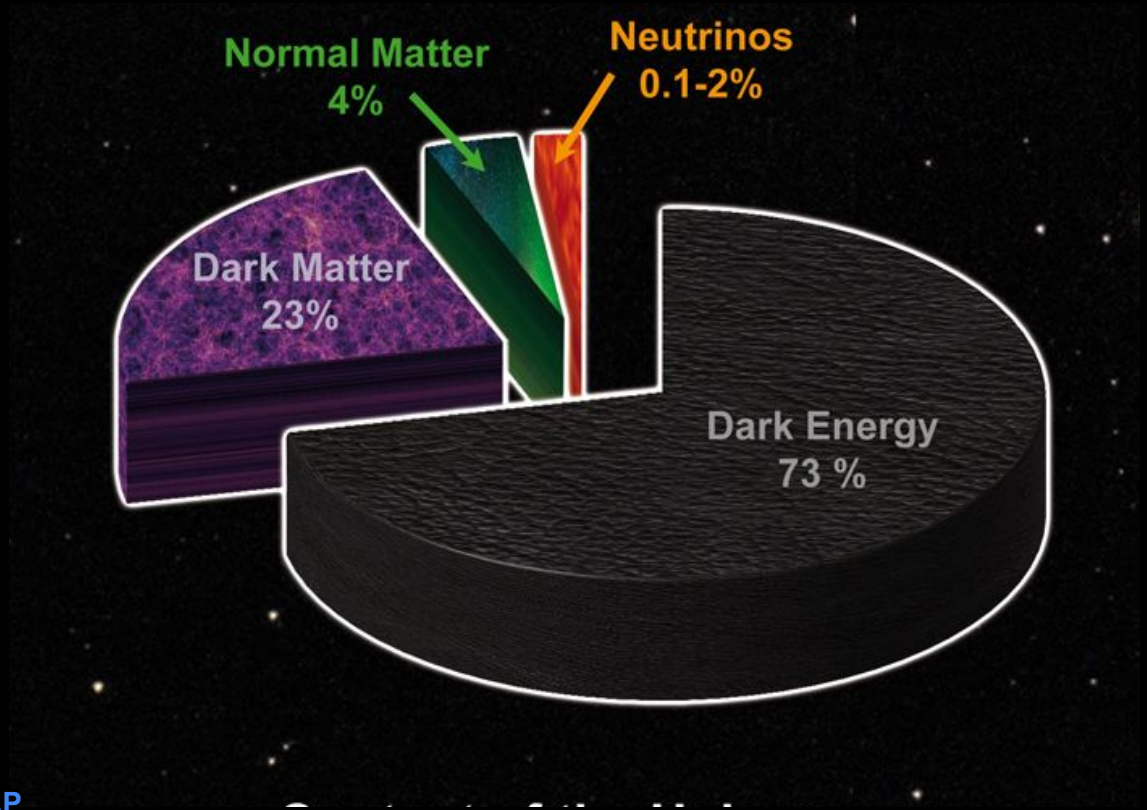


Image: HAP

Weak Gravitational Lensing

Sambit Giri

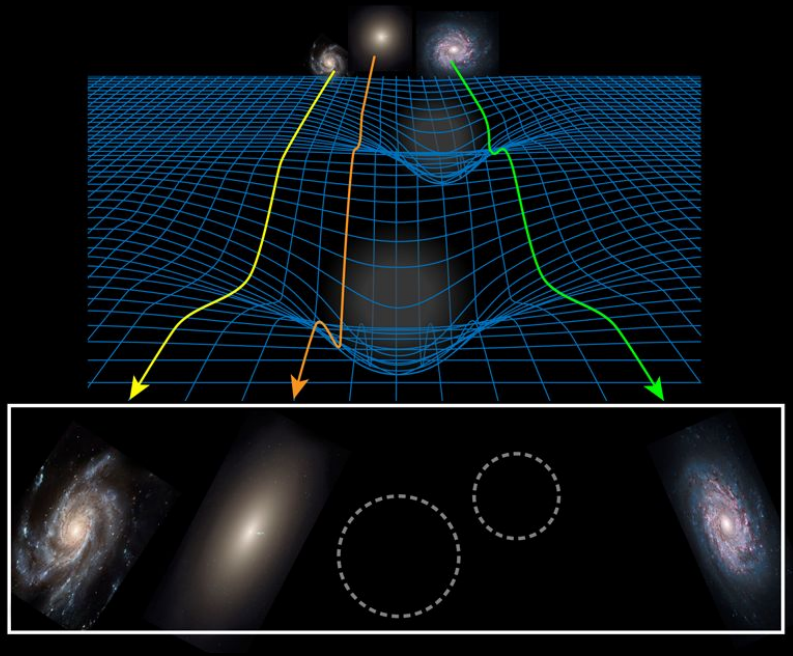
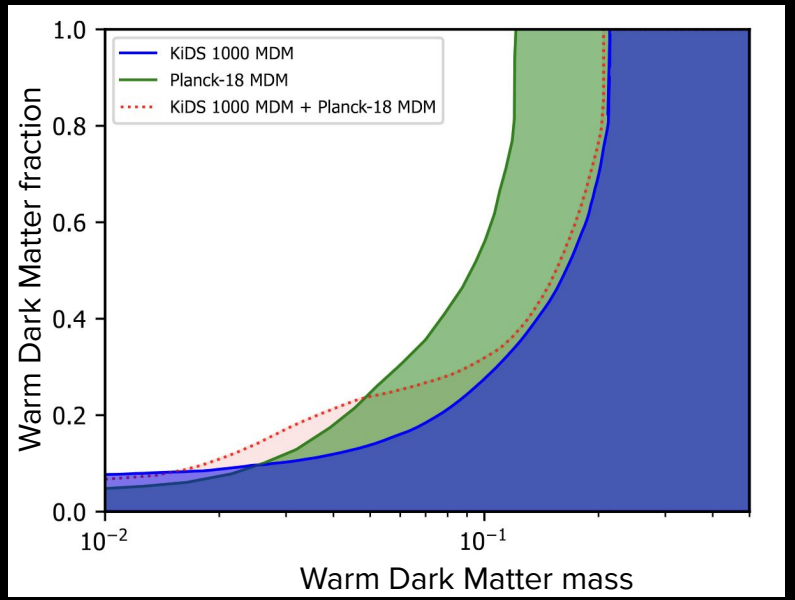
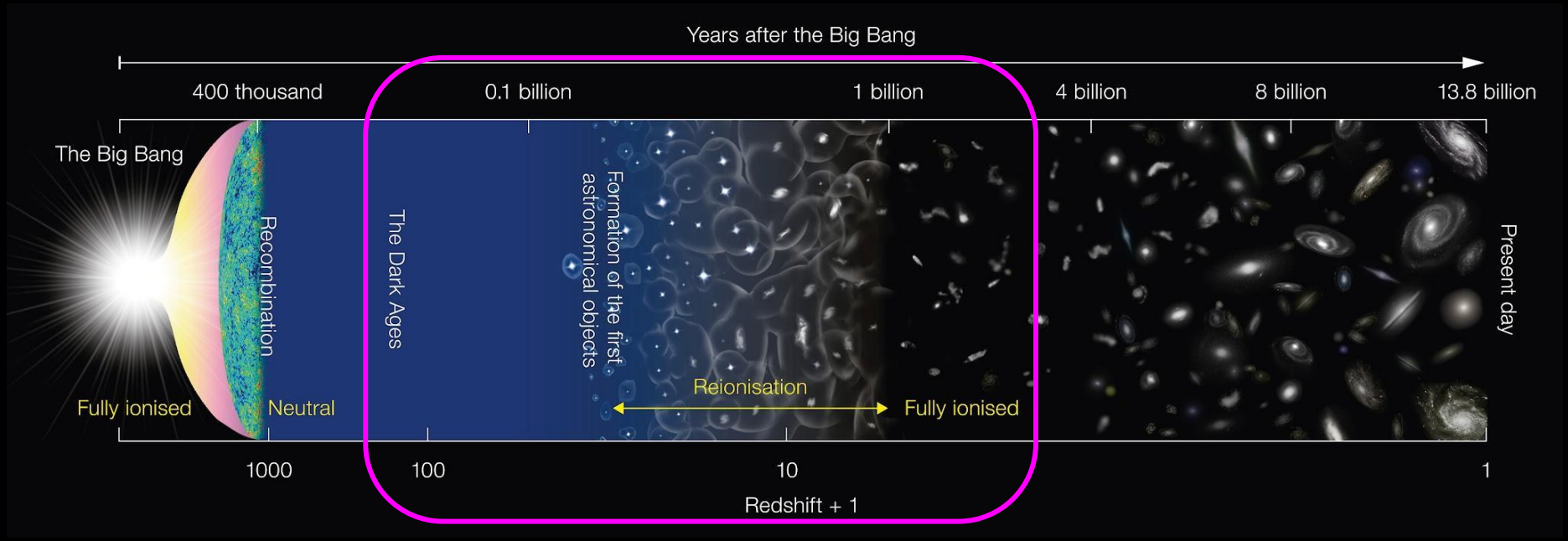


Image: APS Stonebracker

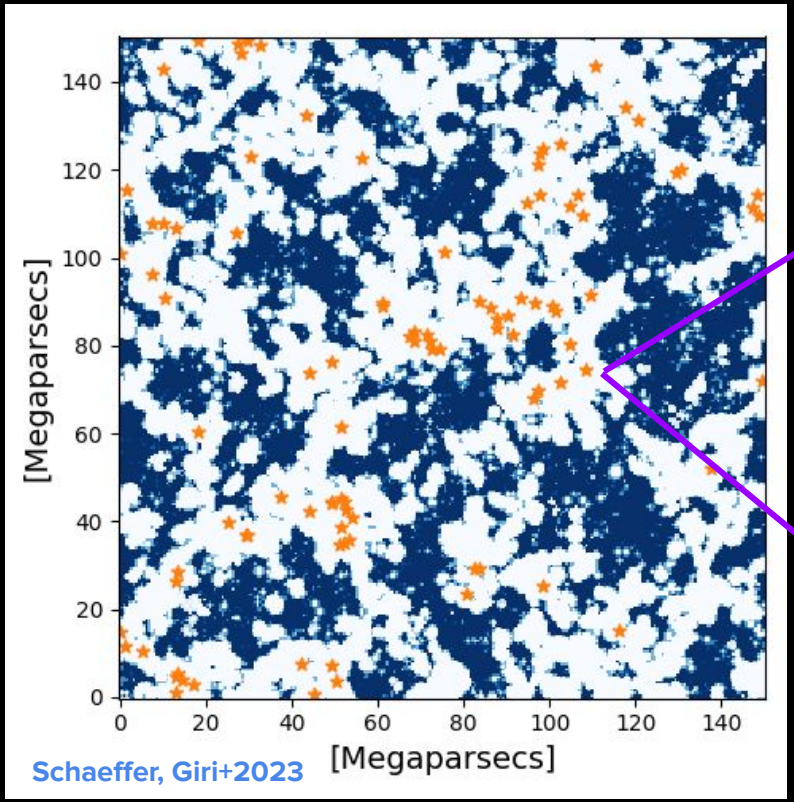


Peters...Giri+2023

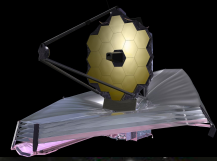
Earlier times

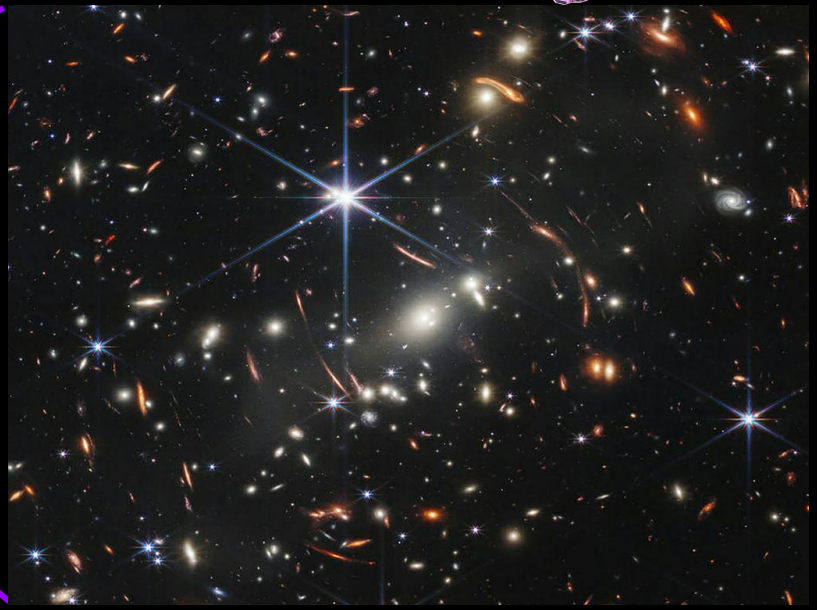


Era of the first stars and galaxies



Schaeffer, Giri+2023

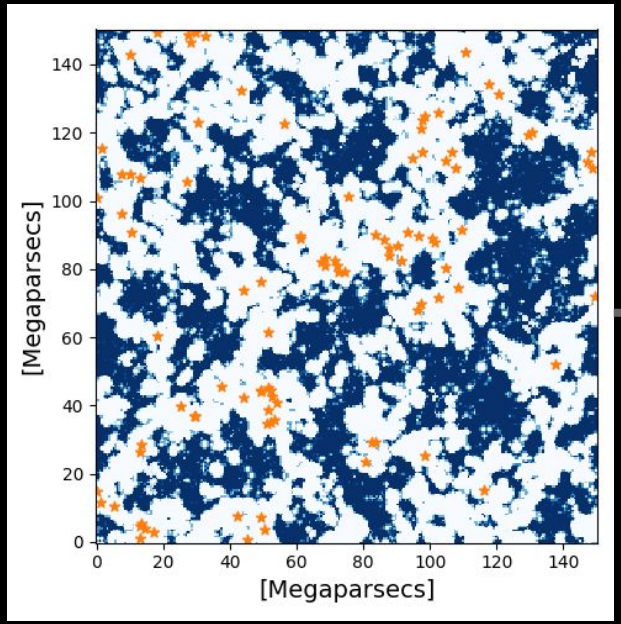




JWST Image
(UCLA Newsroom)

Uncover Early Universe physics

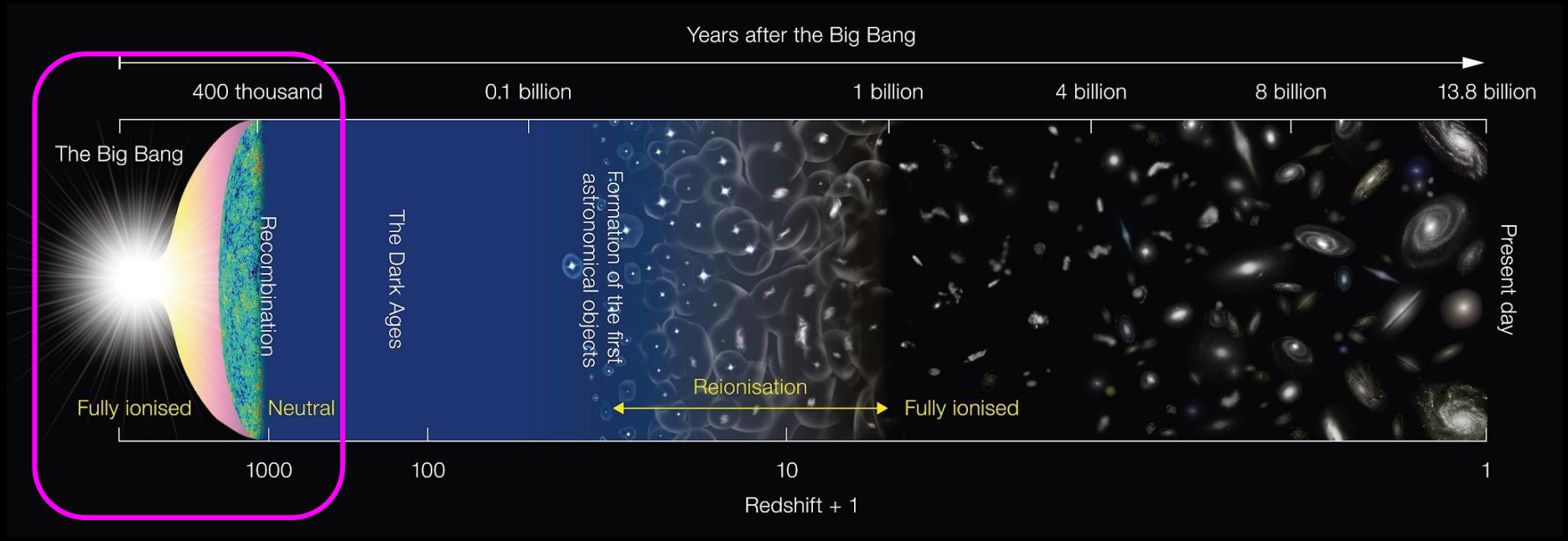
Sambit Giri



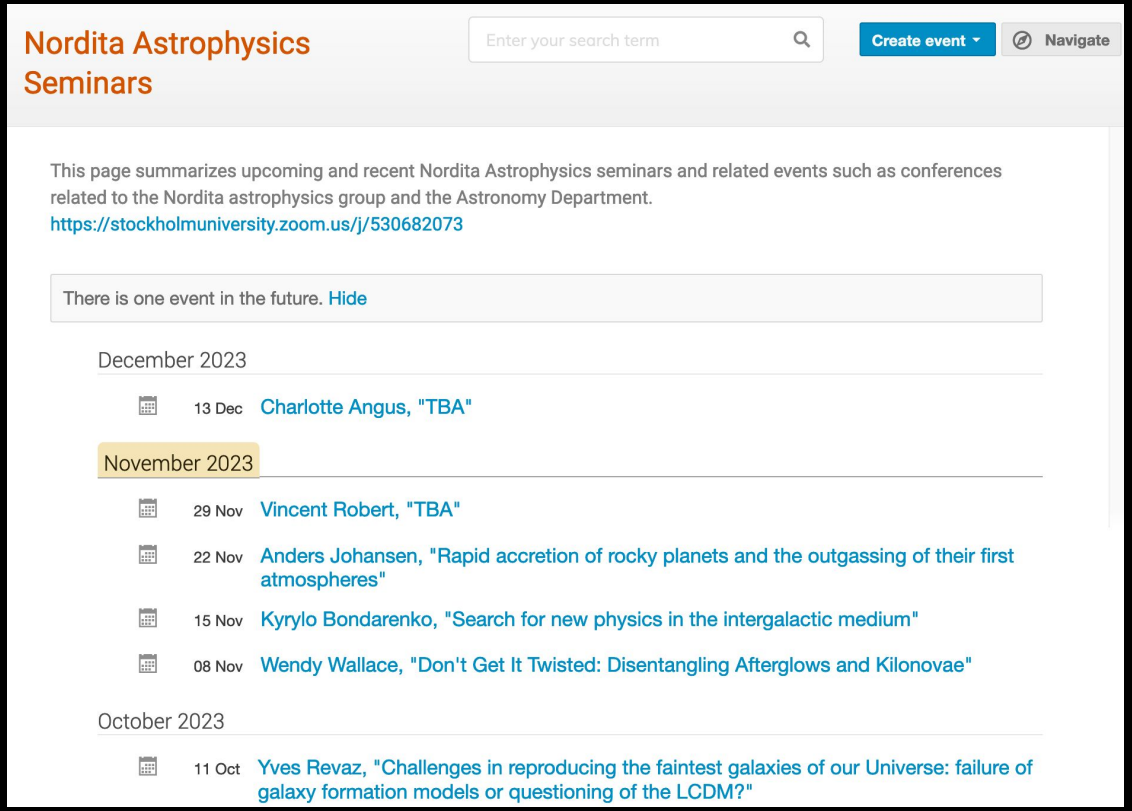
Machine learning & Bayesian statistics

Early Galaxy Formation & Cosmology

Even earlier times



Seminars


Nordita Astrophysics Seminars
Enter your search term
Create event
Navigate
This page summarizes upcoming and recent Nordita Astrophysics seminars and related events such as conferences related to the Nordita astrophysics group and the Astronomy Department.
https://stockholmuniversity.zoom.us/j/530682073
There is one event in the future. Hide
December 2023
13 Dec Charlotte Angus, "TBA"
November 2023
29 Nov Vincent Robert, "TBA"
22 Nov Anders Johansen, "Rapid accretion of rocky planets and the outgassing of their first atmospheres"
15 Nov Kyrylo Bondarenko, "Search for new physics in the intergalactic medium"
08 Nov Wendy Wallace, "Don't Get It Twisted: Disentangling Afterglows and Kilonovae"
October 2023
11 Oct Yves Revaz, "Challenges in reproducing the faintest galaxies of our Universe: failure of galaxy formation models or questioning of the LCDM?"

Scientific Programme

Cosmic Dawn at High Latitudes

Program
10 June — 5 July 2024

Coordinators: Garrelt Mellema, Sambit Kumar Giri

www.nordita.org/**cosmicdawn2024**

The Cosmic Dawn is the era when the first stars and galaxies formed and which set in motion a series of fundamental changes in our Universe. This Nordita program is dedicated to studies of these early galaxies and how they changed the matter between them, the intergalactic medium, from cold and neutral to hot and ionized in a process called reionization. In this context, the program will address the implications of the latest observations, such as by the James Webb Space Telescope (JWST) and various 21-cm experiments, expectations for future observations, as well as the latest developments in modelling the processes during the Cosmic Dawn and the use of these in interpreting the observational results.

Stellar Convection: Modelling, Theory and Observations

Program
26 August — 20 September 2024

Coordinators: Petri Käpylä, Isabelle Baraffe, Hideyuki Hotta, Markus Roth

www.nordita.org/**convection2024**

Understanding turbulent convection is of crucial importance in many fields of stellar astrophysics. For example, differential rotation and large-scale magnetic fields in stars owe their existence to turbulent convection. However, increasing evidence suggests that our understanding of stellar convection is much less complete than previously thought. The most dramatic manifestation of this is the wide discrepancy between the velocity amplitudes at large horizontal scales from helioseismic inferences and numerical simulations. We bring together experts in three-dimensional convection simulations, helio- and asteroseismology, theoreticians and observers present the latest developments and to address open problems in the field.

Looking forward for discussion!