



Welcome to **COLOURS**

Cosmological Surveys and Synergies

Samuel Farrens



THE INSTITUT PASCAL

Thank you IPa! 🙏

- No conference fees!
- Accommodation provided for many participants
- Offices for all participants
- Lunches and coffee breaks
- Social dinners and ice breakers
- Booklets and posters
- Fantastic support!

<https://www.institut-pascal.universite-paris-saclay.fr/>



GOLD: THE GOLDEN COSMOLOGICAL SURVEYS DECADE

Thank you Valeria! 🙏

- GOLD was meant to be a **10-week programme in 2020**
- 3 week-long workshops on cosmology: weak lensing, galaxy clustering and theory
- 1 week-long summer school on cosmology and data science
- Cancelled due to the COVID pandemic 🤒
- Revived in 2023 as **COLOURS**



Valeria Pettorino (ESA ESTEC)

COLOURS

Thank all of you! 🙏

- ▶ Cosmological Surveys and Synergies (COLOURS) ended up being a **2-week programme**
- ▶ **1-week summer school** aimed at preparing early-career researchers for upcoming cosmological surveys but also other career paths
- ▶ **4-day workshop** aimed at understanding what we have learned from stage-III cosmological surveys and what we hope to learn from stage IV
- ▶ Thanks to some very generous speakers, the LOC and the SOC we managed to pull everything together!
- ▶ We hope you enjoy the programme! 😊

The poster for the COLOURS event is set against a dark blue background. At the top, a rainbow arch frames the word "COLOURS" in white capital letters. Below the arch, a stylized illustration of the Eiffel Tower is centered, with a dark blue circle containing four yellow stars above it. The text "Cosmological Surveys and Synergies" is written in a curved path above the rainbow. Below the illustration, the dates "June 2nd - 13th 2025" and the location "Institut Pascal (IPA) - France" are displayed. The bottom section lists the Scientific Organizing Committee (SOC) and Key Note speakers, along with logos for CosmoStat, irfu, AIM, and ARGOS.

SOC

Stefano Camera (U. Turin)
Samuel Farrens (CEA)
Natalia Porqueres (CEA)
Elena Sellentin (U. Leiden)
Marta Spinelli (OCA)
Jean-Luc Starck (CEA & FORTH)

LOC

Samuel Farrens (CEA)
Anna Guerreschi (IPa)
Sacha Guerrini (CEA)
Fabian Hervás Peters (CEA)
Natalia Porqueres (CEA)
Vilasini Tinnaneri Sreekanth (CEA)

KEY NOTE

David Alonso (Oxford)
Silvia Galli (IAP)
Daniel Gruen (LMU)
Catherine Hale (Oxford)
Alex Hall (ROE)
Valeria Pettorino (ESA ESTEC)
Marta Spinelli (OCA)
Pauline Zarrouk (LPNHE)

June 2nd - 13th 2025

Institut Pascal (IPA) - France

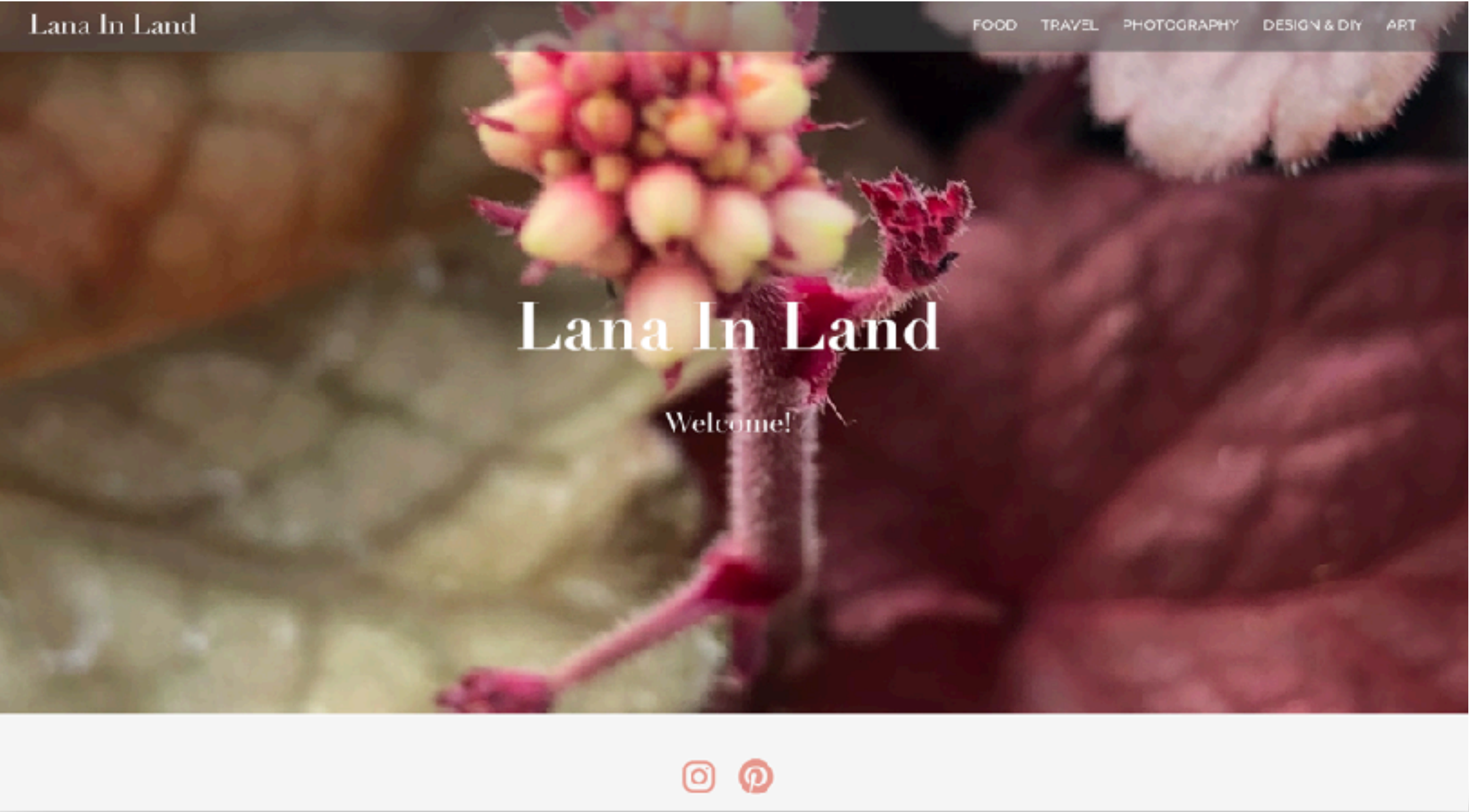
CosmoStat **irfu** **AIM** **ARGOS**

universit  PARIS-SACLAY **INSTITUT PASCAL** **CEA** **TITAN**

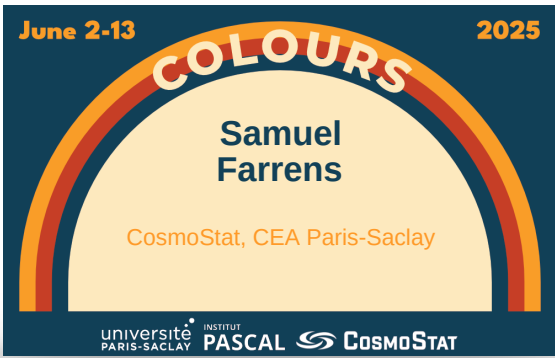
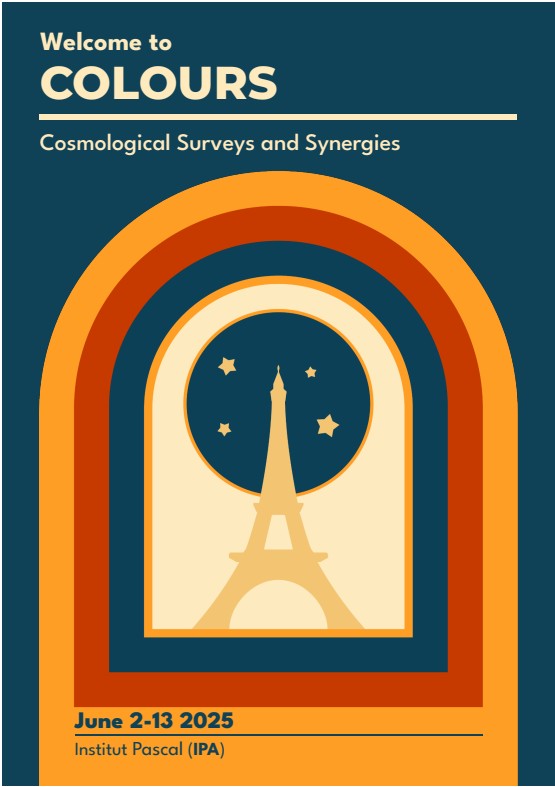
COLOURS DESIGN

Thank you Lana! 🙏

- Logo, poster, booklet and badge design



<https://www.lanainland.com/>
<https://www.instagram.com/lanainland/>



THE COLOURS ORGANISERS

The LOC



Samuel Farrens



Anna Guerreschi



Sacha Guerrini



Fabian Hervas Peters



Natalia Porqueres



Vilasini Tinanneri Sreekanth

The SOC

- Stefano Camera (U. Turin, IT)
- Samuel Farrens (CEA, FR)
- Natalia Porqueres (CEA, FR)
- Elena Sellentin (U. Leiden, NL)
- Marta Spinelli (OCA, FR)
- Jean-Luc Starck (CEA, FR & FORTH, GR)

WHERE WE WORK



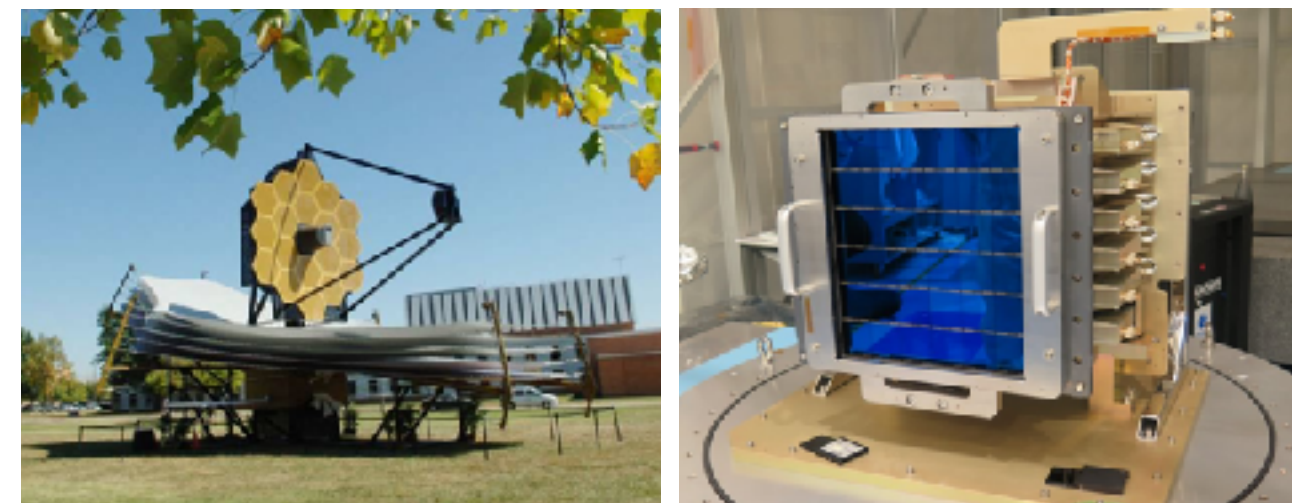
www.cea.fr & irfu.cea.fr

- **CEA:** French Alternative Energies and Atomic Energy Commission
- **IRFU:** Institute of research into the fundamental laws of the Universe



irfu.cea.fr/dap/

- **AIM:** Astrophysics, Instrumentation and Modelling
 - Cosmology
 - Galaxy Formation
 - Star Formation
 - Exo-planets
 - High-energy events
 - Plans modelling
 - Instrumentation (e.g. JWST, Euclid)



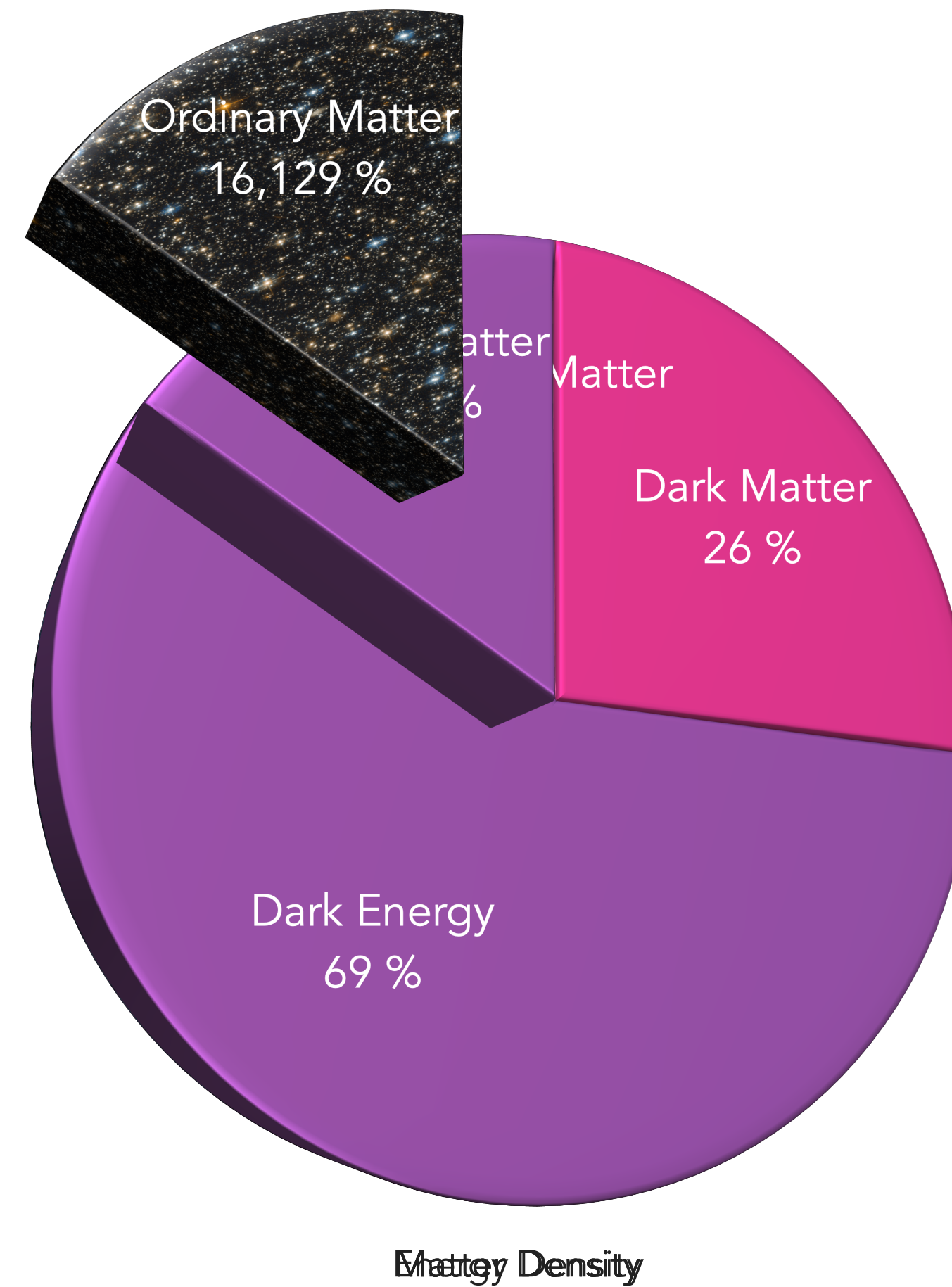
www.cosmostat.org

- **CosmoStat:** Cosmology and Statistics
 - Weak gravitational lensing
 - Machine learning
 - Signal/image processing
 - Inference
 - Euclid, Rubin LSST, SKAO, UNIONS



MOTIVATION

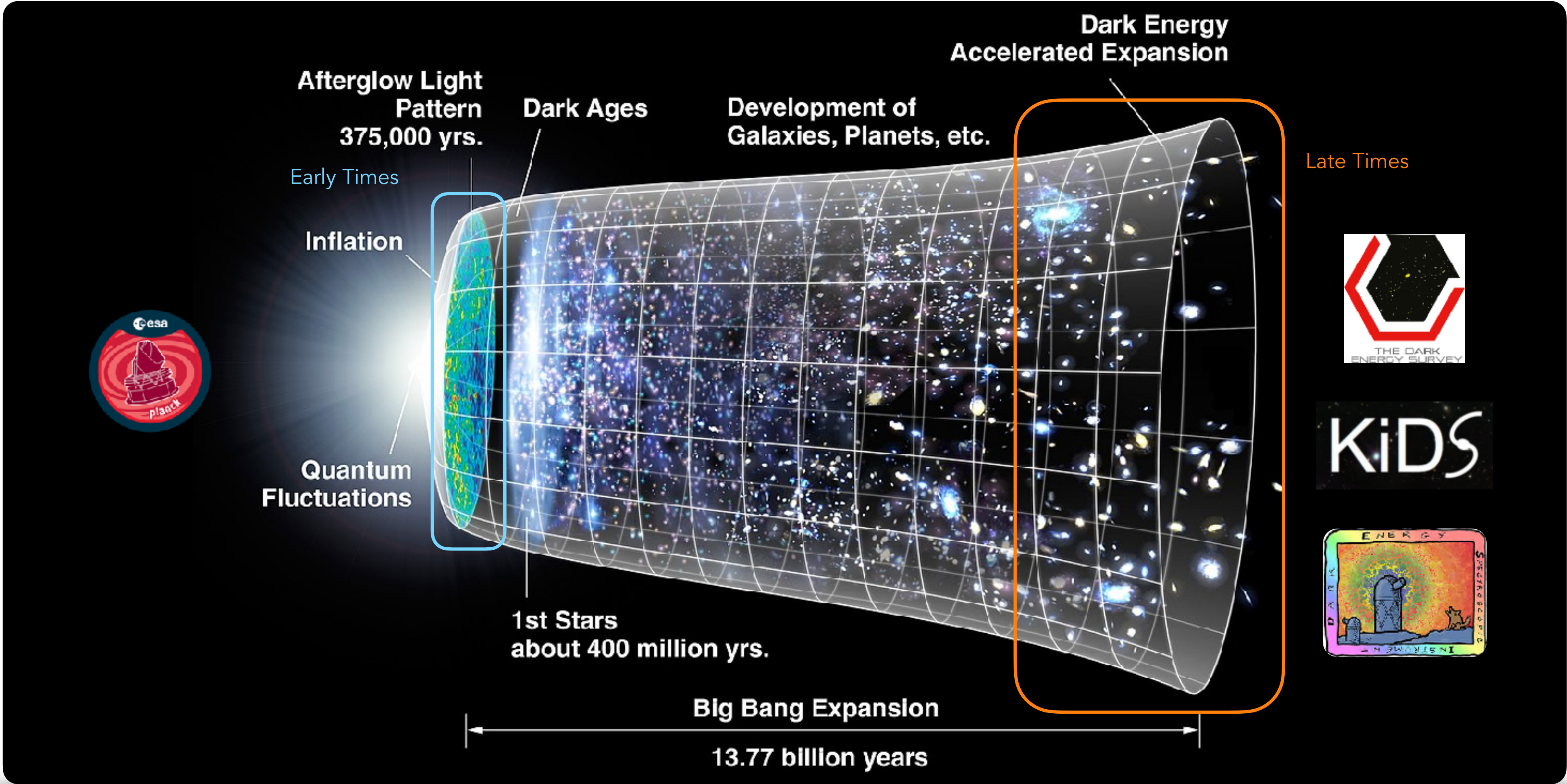
- Baryonic effects?
- Nature of dark matter?
- Nature of dark energy?
- Is Λ CDM complete?



- Is General Relativity complete?
- New physics to be found?
- Do we really understand systematics?
- Neutrino masses?

MOTIVATION

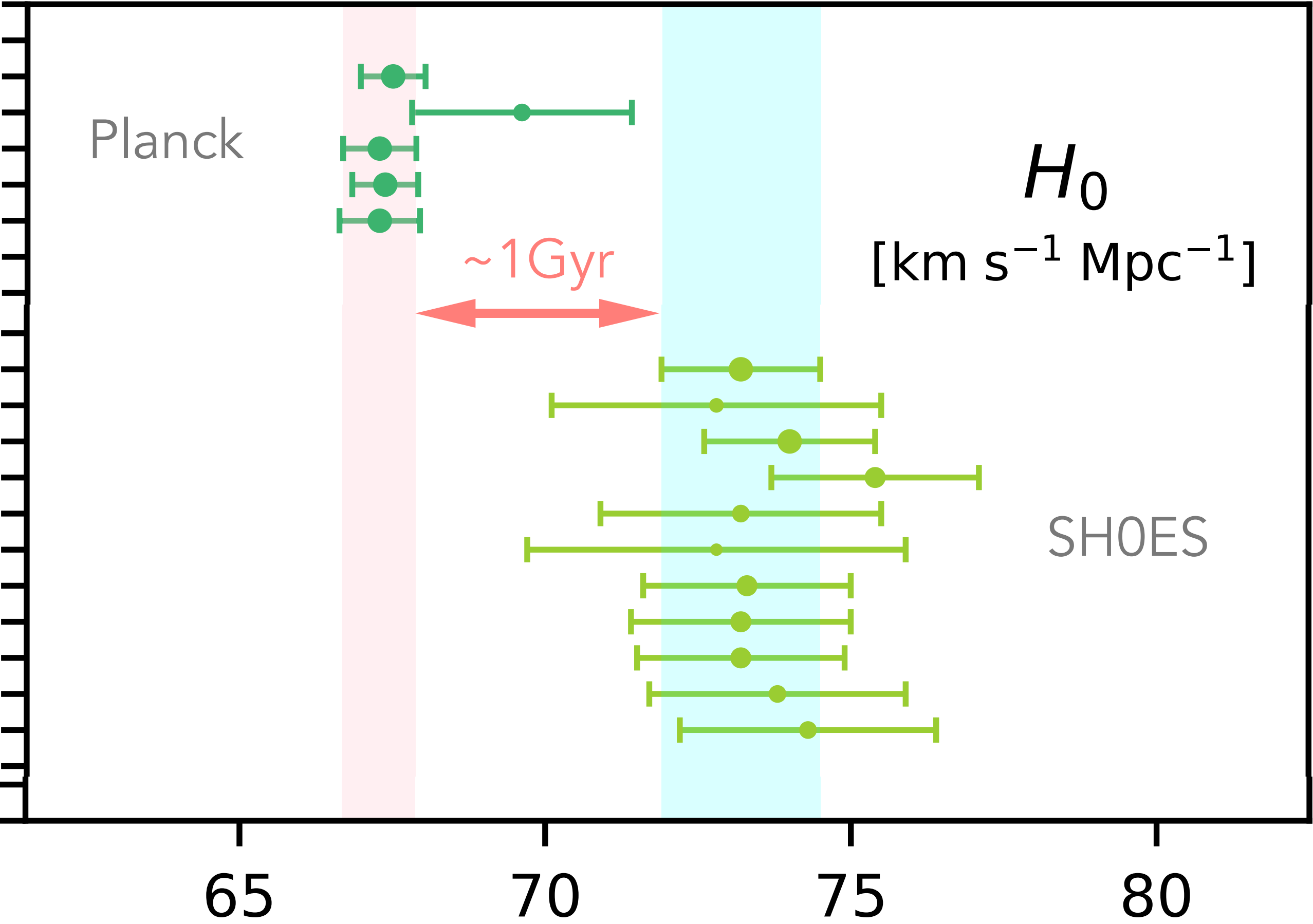
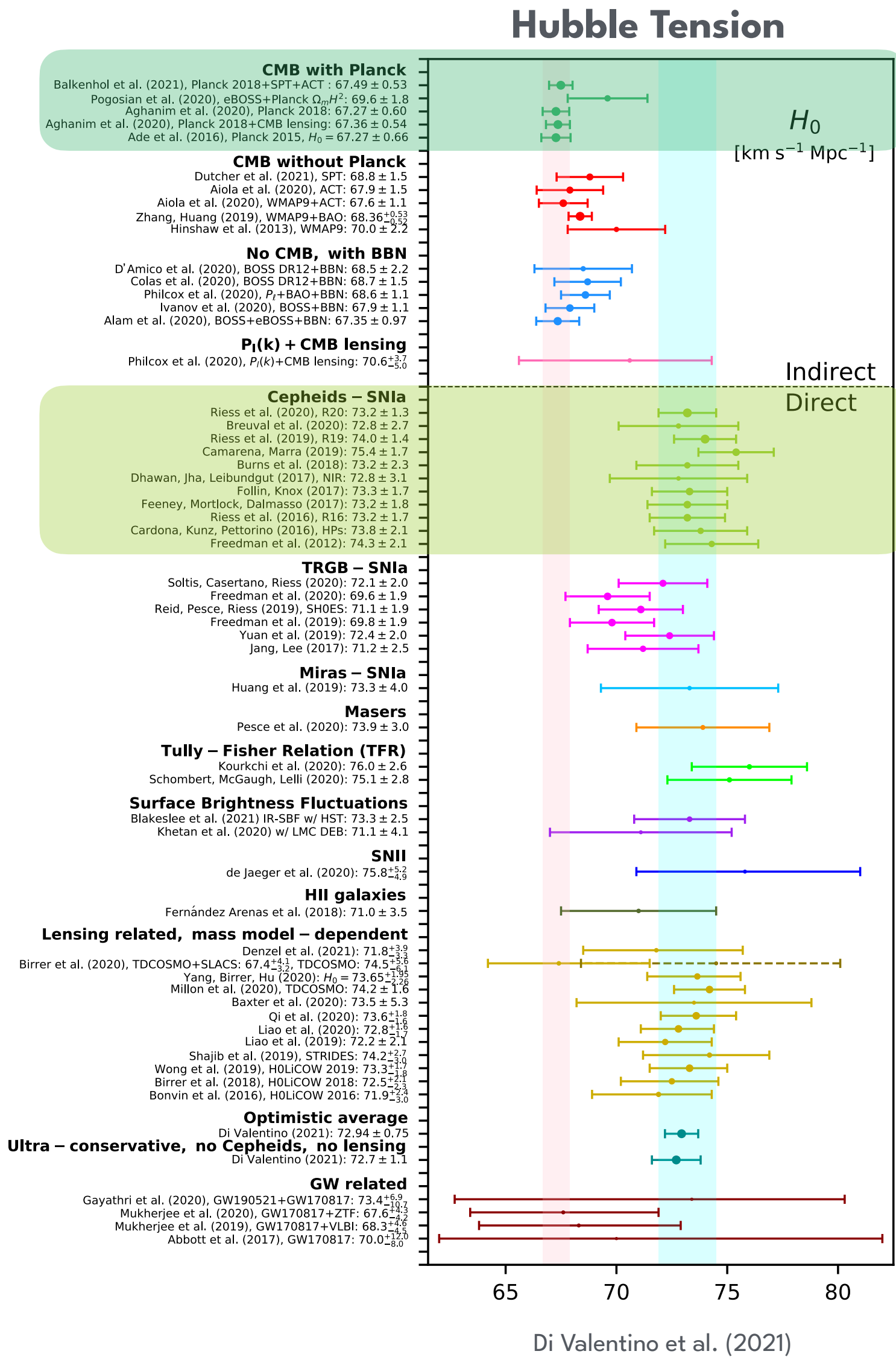
Tension between early and late-times



Credit: NASA/WMAP

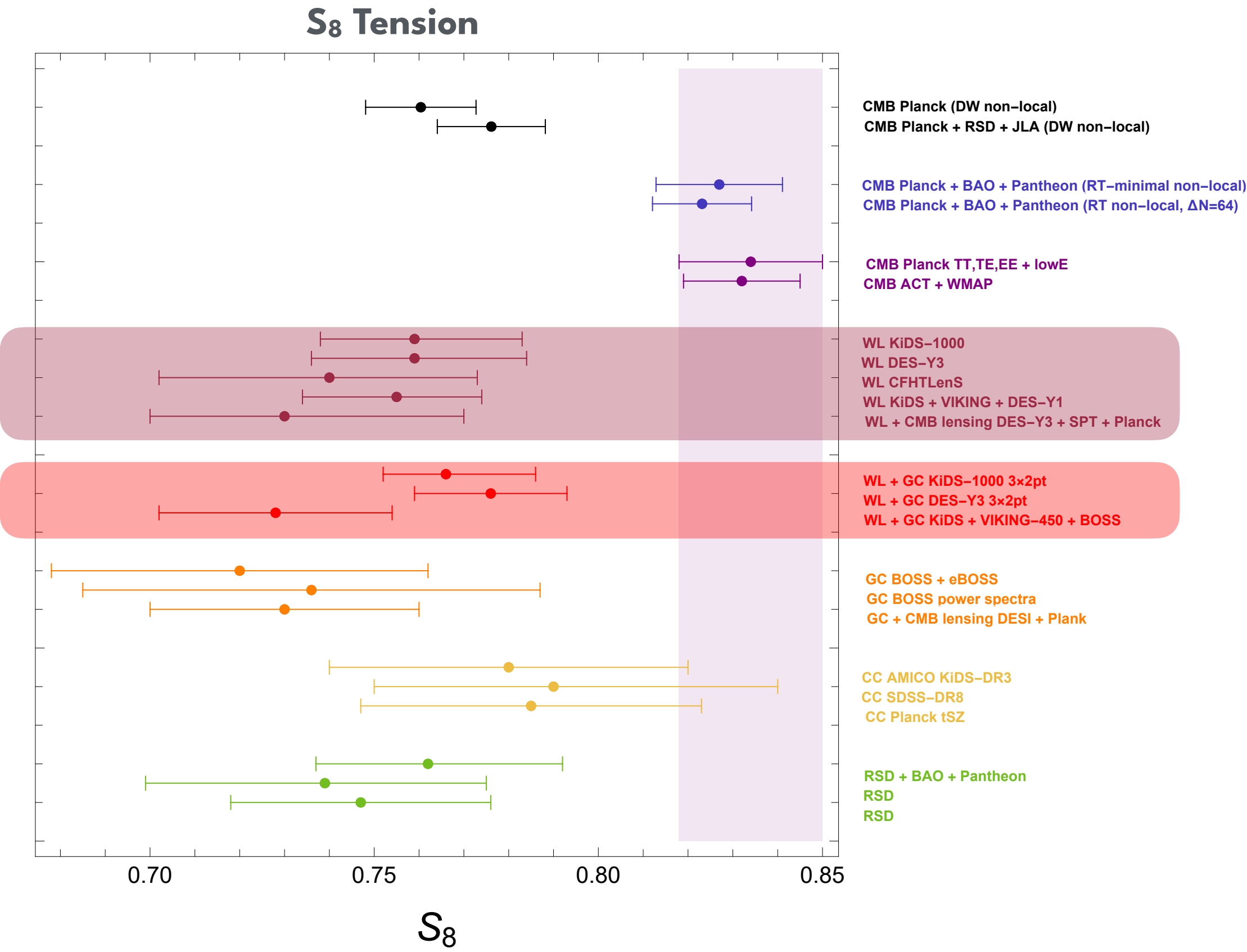
MOTIVATION

Age of the Universe

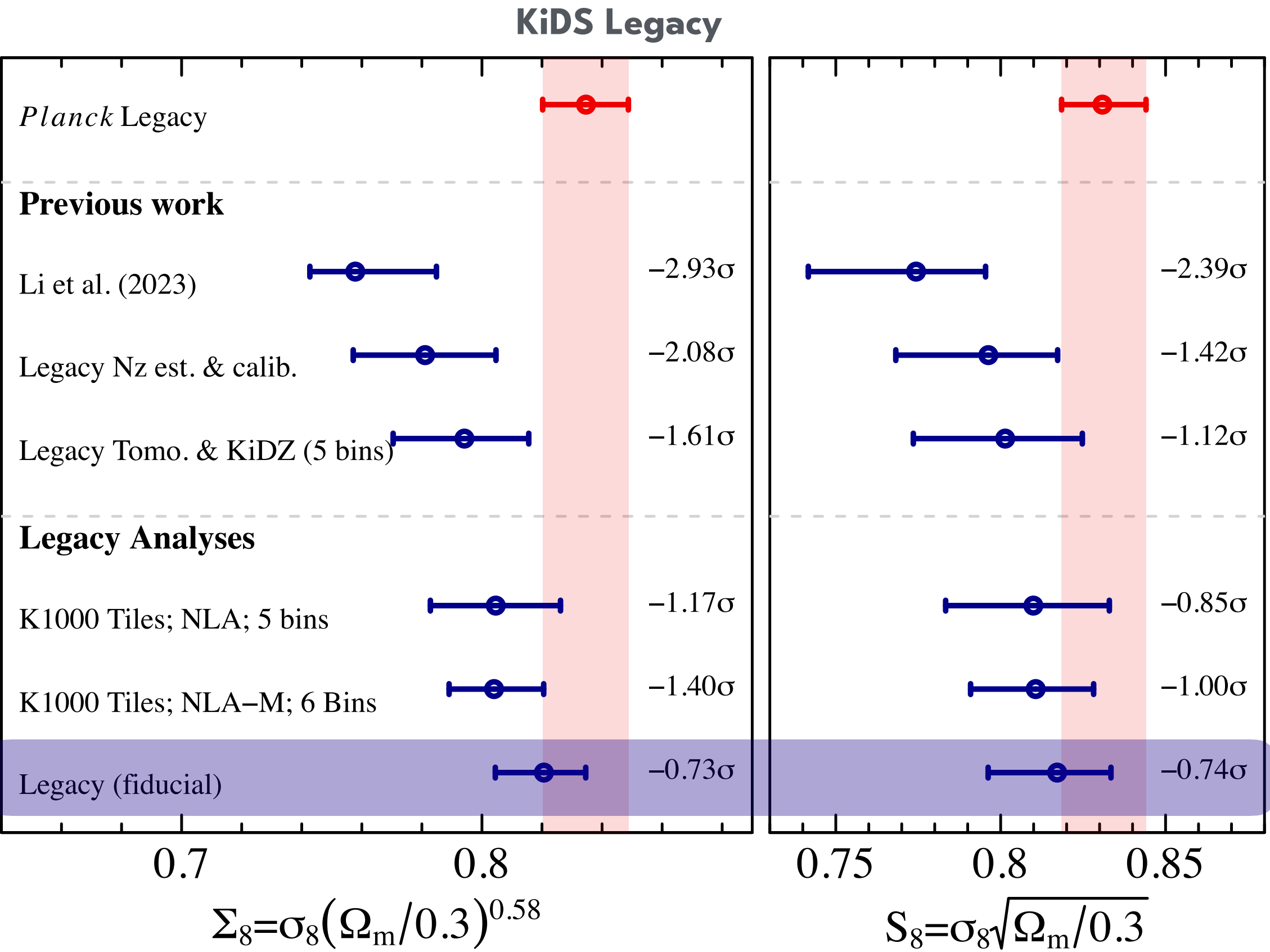


MOTIVATION

Mass and Structure of the Universe



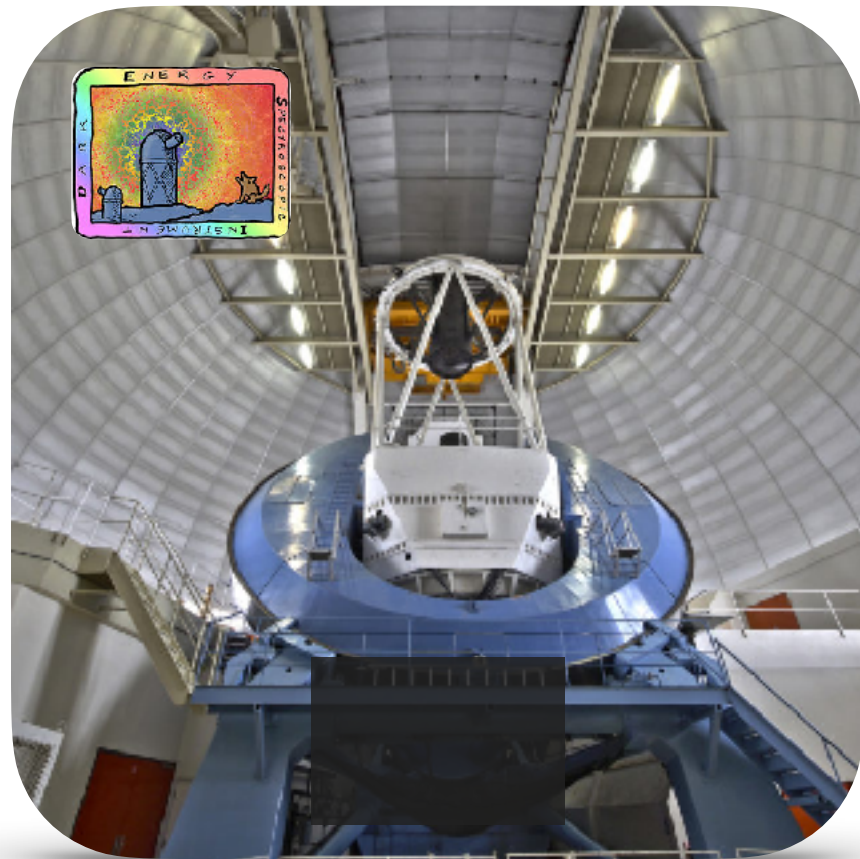
Bouché et al. (2022)



Wright et al. (2025)

MOTIVATION

Missions



THE COLOURS SCHOOL

Work Hard

- **Monday 2nd** of June until **Friday 6th** of June
- 5 lectures/tutorials on **Cosmology**
- 2 hands-on tutorials on **Data Science**
- 1 hands-on tutorial on **Communication**
- 1 guided visit to a **Quantum Computing** centre
- 1 interactive session on **Transferable Skills**

Play ~~Hard~~ Responsibly

- 1 **Buffet Lunch** on Monday afternoon
- 1 **Ice Breaker** on Monday evening
- 1 **Social Dinner** on Friday evening
- Plenty of long lunch breaks!
- 3-day weekend!

Take advantage of the **#social** channel

COMMUNICATION

<https://colours-2025.slack.com>

- Slack will be the primary source of information and communication.
- Keep an eye on **#announcements!**



CODE OF CONDUCT

https://indico.ijclab.in2p3.fr/event/11110/attachments/24233/35305/colours_coc.pdf

- All participants, speakers, and LOC members have agreed to abide by the Code of Conduct through the registration form.
- The CoC applies throughout the entire COLOURS programme — including social events and offsite activities.
- If you experience or witness any incident or issue, please report it to any member of the LOC. You can do so:
 - In person
 - Via Slack
 - By email — at any time
- **The LOC is committed to taking appropriate action.**

THE COLOURS PROGRAMME

<https://indico.ijclab.in2p3.fr/event/11110/>



COLOURS

2–13 Jun 2025

Institut Pascal

Europe/Paris timezone

Enter your search term

- Overview
- Timetable**
- Contribution List
- My Conference
 - My Contributions
- Registration
- Participant List
- Contact

anna.guerreschi@univer...

Timetable

◀

Mon 02/06
Tue 03/06
Wed 04/06
Thu 05/06
Fri 06/06
Sat 07/06
Sun 08/06
Mon 09/06
▶

Print

PDF

Full screen

Detailed view

Filter

☒ COLOURS School
☐ Registration
☐ Social
✕

Time	Event
09:00	<div style="background-color: #cccccc; height: 100px; position: relative;"> <div style="position: absolute; top: 5px; left: 5px;">Registration: School</div> </div>
10:00	<div style="display: flex; justify-content: space-between;"> <div style="width: 60%;"> <div style="background-color: #cccccc; height: 40px;"></div> <div style="background-color: #90ee90; padding: 5px;"> Welcome to the Institut Pascal <i>Institut Pascal!</i> </div> </div> <div style="width: 35%;"> <div style="background-color: #d8bfd8; padding: 5px;"> Coffee <i>Institut Pascal</i> </div> </div> </div>
11:00	<div style="background-color: #90ee90; padding: 5px;"> Welcome to COLOURS <i>Institut Pascal!</i> </div>
12:00	<div style="background-color: #90ee90; padding: 5px;"> Clustering around clusters with Euclid Q1 data </div>

Detailed View

To see all session times and speakers. Keep an eye for changes that may come up during the programme!

Food

- ▶ Buffet lunches will be provided at the IPa on Monday 2nd and Tuesday 10th.
- ▶ Vouchers for free lunches in the canteen will be provided on the other days, including the Friday 13th.
- ▶ Coffee breaks will be provided twice a day.
- ▶ The ice breaker events will include snacks.
- ▶ You can find some goodies in the kitchen at any time if you are feeling peckish.
- ▶ You are on your own for dinner, but feel free to ask the LOC for recommendations!

WiFi


- ▶ **Eduroam** is available throughout the premises.
- ▶ **visiteurs** network also available.

Password: **1Up97Sy!**

Building Access

- ▶ The doors are open from **09:00 till 17:00 CEST**.
- ▶ All LOC members have **access cards** if you need to get in the building outside these times.
- ▶ You will be able to exit the building at any time.

COLOURS SPIRIT

- Ask questions! You are all here to learn, so don't be shy!
- Talk to people! Networking is a critical part of an (non-)academic career.
- Take advantage of the facilities. Write equations, draw pictures, debate the nature of the Universe!
- Take advantage of being in Île-de-France. You have Paris and the surrounding areas at your disposal. Rent a bike, go to a museum, eat some snails! 
- Be nice, be inclusive, be interested!

Enjoy COLOURS

