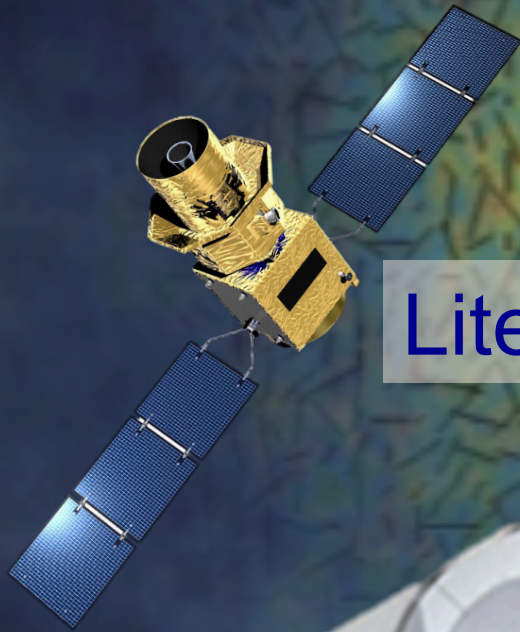


B01: Large-area CMB surveys for studies of cosmic acceleration and large-scale structure



LiteBIRD

Simons Array

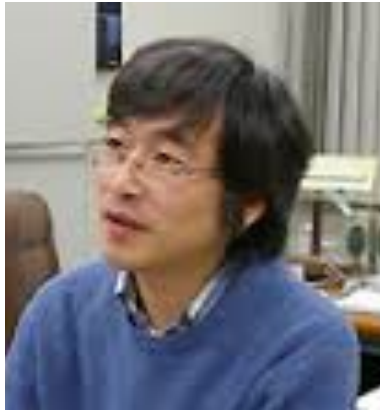
artistic impression

Masashi Hazumi
(KEK & Kavli IPMU & SOKENDAI & ISAS/JAXA)

B01 Co-Is (研究分担者)



Nobu Katayama



Kazuhisa Mitsuda



Yutaro Sekimoto



Hirokazu Ishino



Masaya Hasegawa

B01 Collaborators (連携研究者)



Tomo Matsumura



Osamu Tajima



Tsuneo Kii



Yuji Chinone



Haruki Nishino

+ Other researchers
Postdocs,
and Students



Masashi Hazumi (PI)

B01 Scope

1. Simons Array → Talk by Yuji Chinone (UC Berkeley and Kavli IPMU)

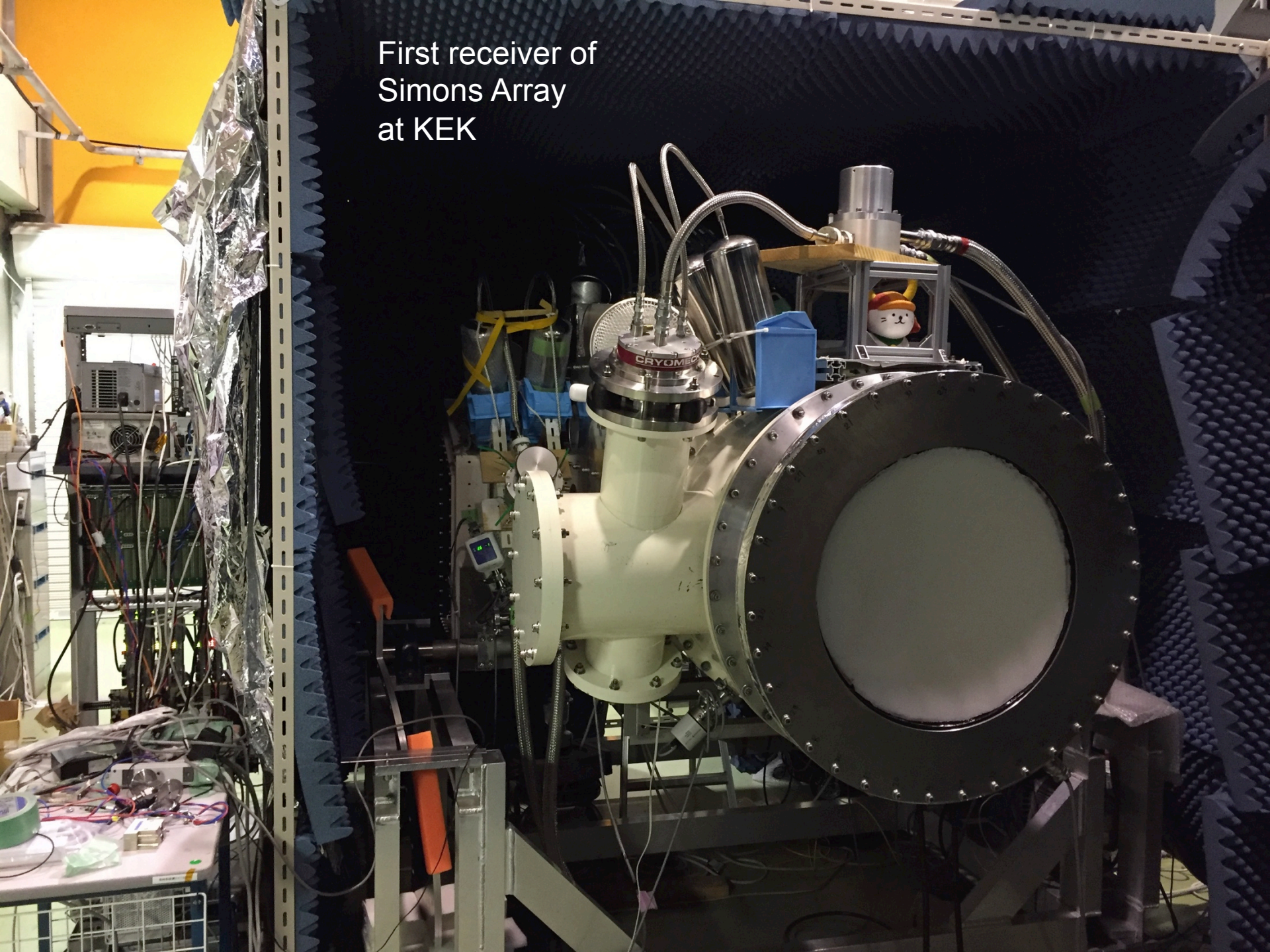
- = “Advanced POLARBEAR”
- Multi-chroic observations with three telescopes
 - Including high frequency ($>200\text{GHz}$) for foreground separation
- Goals
 - $\sigma(r) < 0.01$
 - $\sigma(\Sigma m_\nu) < 100\text{meV}$
 - n_s will also be improved from E-mode measurements.
- Bonus as a general-purpose cosmology/astronomy telescope

2. LiteBIRD → Talk by Hirokazu Ishino (Okayama U.)

- Design, R&D of key components for launch in mid 2020s
- End-to-end Simulation on foreground separation and systematics mitigation
- Goal: Establish the technology/system to achieve $\sigma(r) < 0.001$

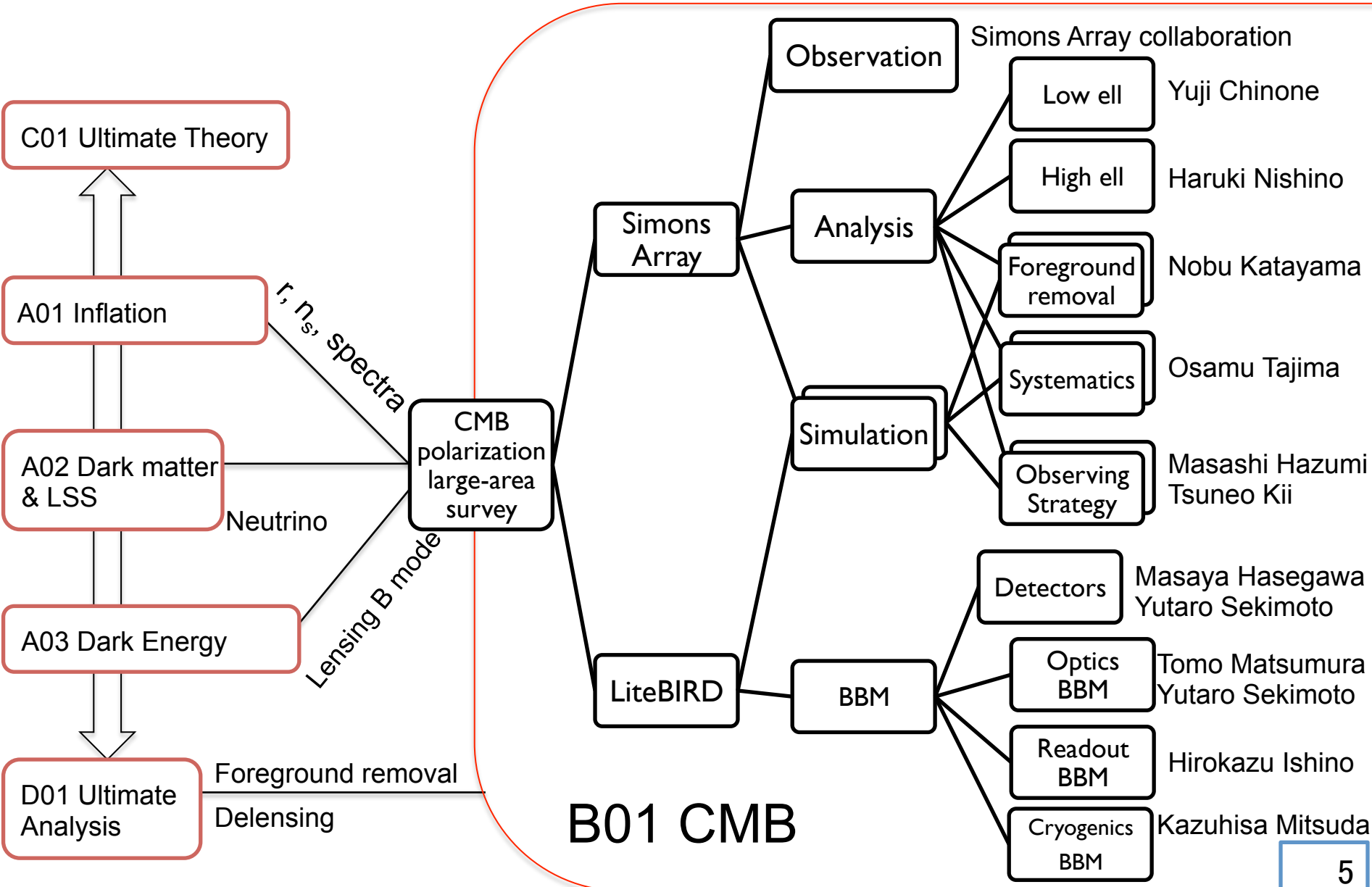
Note: POLARBEAR-2 (= first receiver of Simons Array) and GroundBIRD are pushed forward with KAKENHI Kiban(S) and thus are out of the scope of B01 in terms of funding.

First receiver of
Simons Array
at KEK



B01 Organization

Observations Projects Scope of B01 Tasks Personnel



B01-related Open Solicitation (公募研究)

- 核融合科学研究所 高田 卓
ミリ波からサブミリ波領域における機能性高放射率材料の開発
- 核融合科学研究所 高山 定次
陶磁器焼成技術を応用したミリ波光学素子の開発
- KEK素粒子原子核研究所 田島 治
偽偏光を作らない光学系「超伝導ミラー」の開発研究

See poster presentations

Global Situation

Who are competitors of Simons Array and LiteBIRD ?

- Ground-based:
 - Advanced ACTPol, SPT3G, BICEP3, Class, etc.
 - Simons Observatory (marriage of POLARBEAR and ACT)
 - CMB-S4 (in preparation to get DOE's CD0 status)
- Balloon:
 - SPIDER, PIPER, etc.
- Satellite:
 - Planck → Talk by Anne Ducout (Kavli IPMU) on recent polarization meas.
 - CORE (ESA M5) proposed, in evaluation
 - PIXIE (NASA) proposed, in evaluation

Yellow: not yet funded

Simons Array and LiteBIRD are very competitive projects !



Welcome to the exciting world of
CMB observations !