# LiteBIRD(-LNF):

## the measurement of the B-mode polarization of the CMB

**Contributed by the INFN-LNF Group:**
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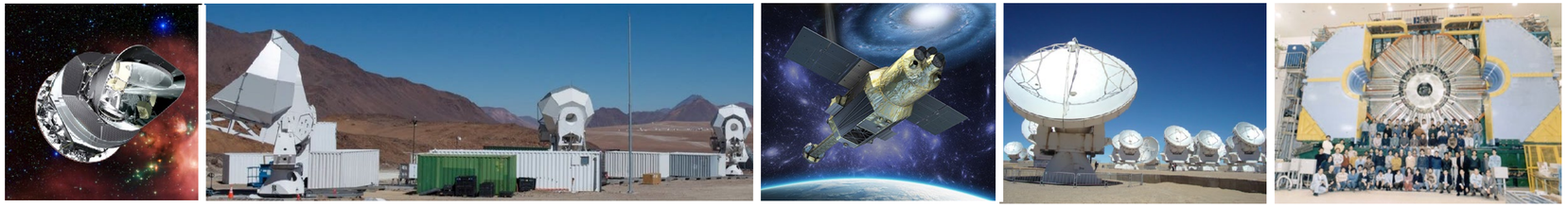
UNIVERSITY OF TORONTO

# LiteBIRD Joint Study Group

Over 400 researchers from **Japan**, **North America** and **Europe**

Team experience in CMB experiments, X-ray satellites and other large projects (ALMA, HEP experiments, …)

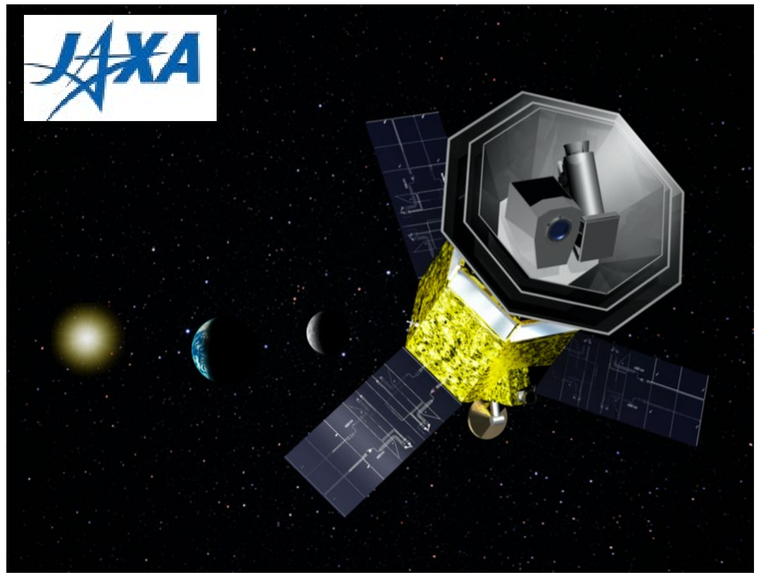


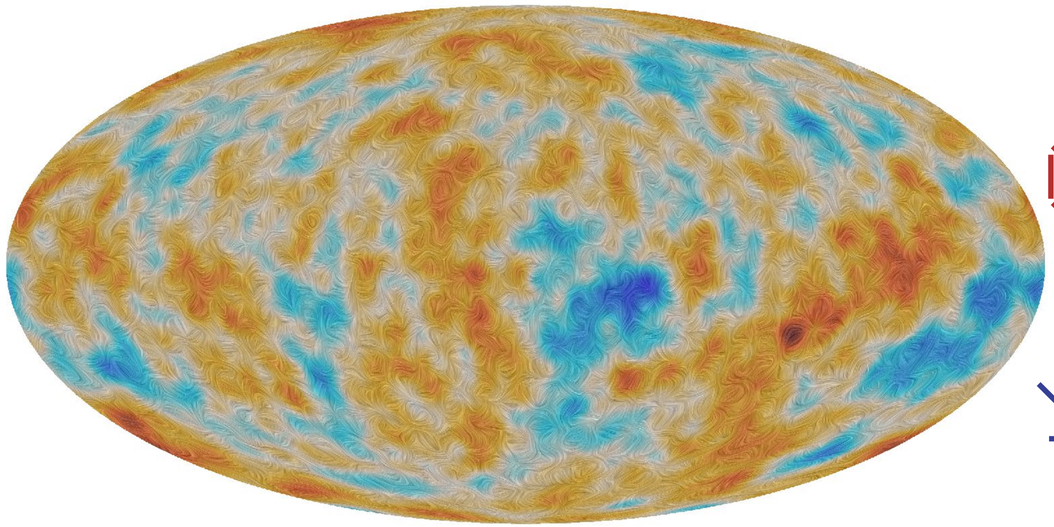
LiteBIRD Global F2F meeting
Sep 28 - Oct 1, 2023 at Elba

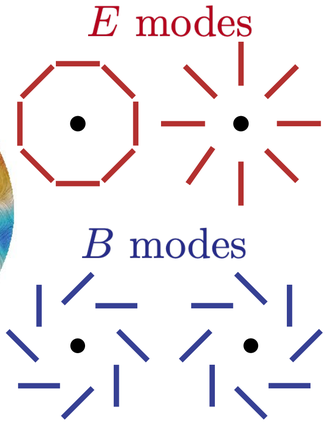
# LiteBIRD overview

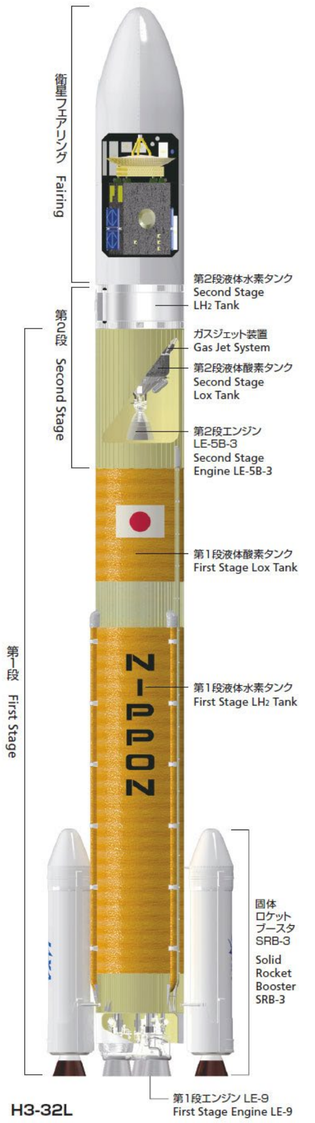
- Lite (Light) satellite for the study of *B*-mode polarization and Inflation from cosmic background Radiation Detection
- JAXA's L-class mission selected in May 2019
- Expected launch in **JFY 2032** with JAXA's H3 rocket
- All-sky 3-year survey, from Sun-Earth Lagrangian point L2
- Large frequency coverage (**40–402 GHz**, 15 bands) at **70–18 arcmin** angular resolution for precision measurements of the **CMB *B*-modes**
- Final combined sensitivity: **2.2 μK·arcmin**

LiteBIRD collaboration PTEP 2023





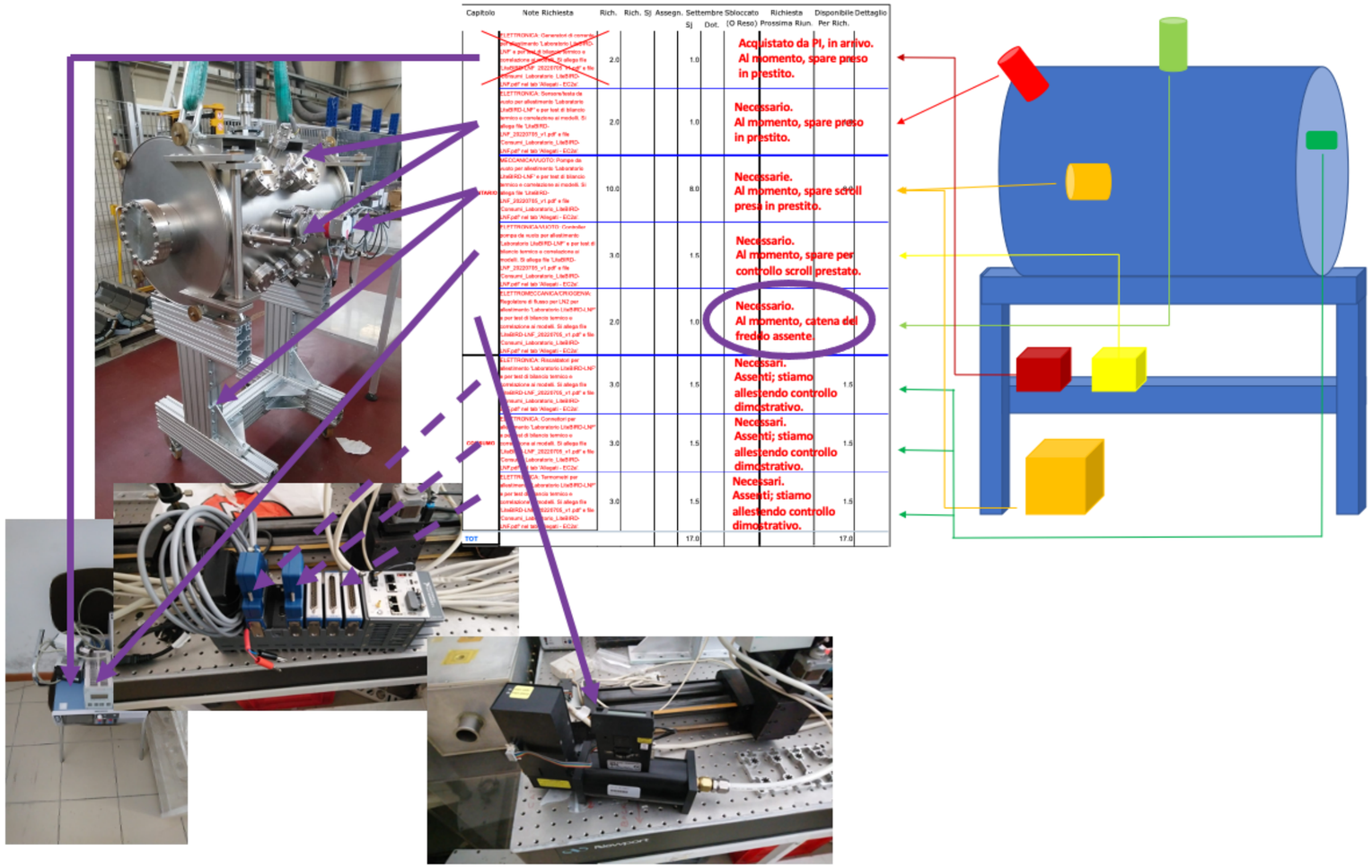
# LiteBIRD Phase A-2-B Transition

**We are transitioning…**

# LNF Thermo-Vacuum Facility Completion

Activity as of today:

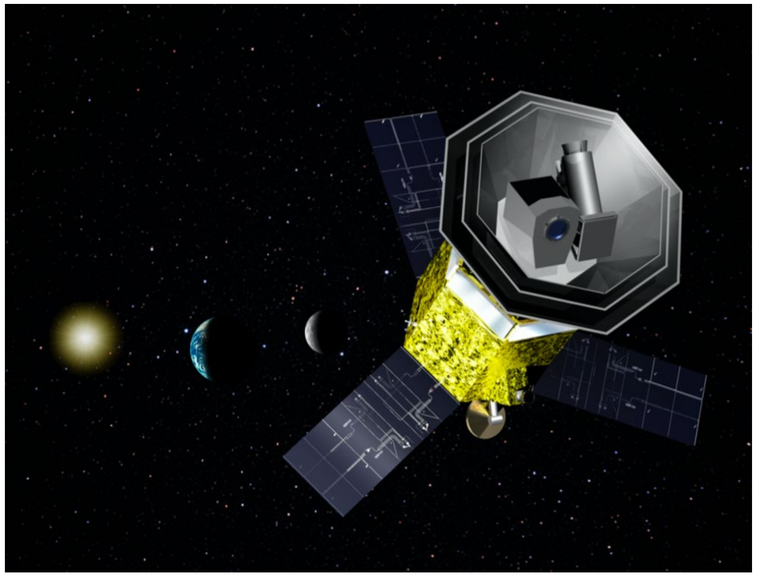
- Thermal balance test (and correlation to models) thanks to the ‘pocket’ cryostat which is at our disposal, and that is being instrumented in a dedicated space.

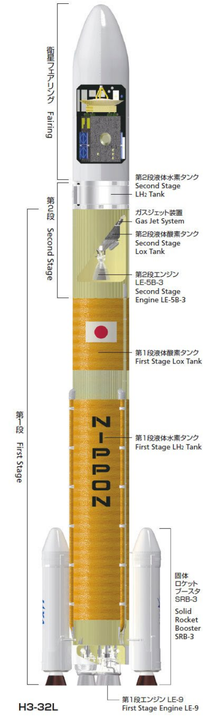


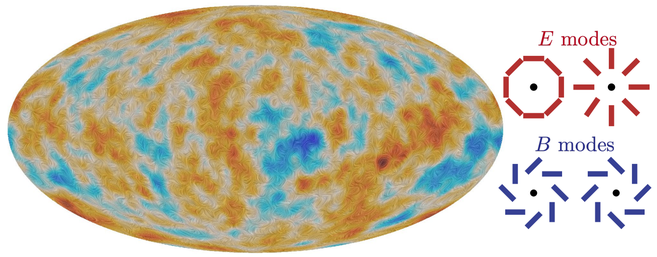
# LiteBIRD-LNF x 2026

## Objective: perform tests on the (flight) electronics of interest.

- **2025 Results:**
  - Setting up and instrumenting the ‘pocket’ cryostat for tests on the electronics of interest.
  - Perform the first thermal balance test on the prototypical electronics of interest.
- **2026 Objectives:**
  - Finalise setup and instrumentation of the ‘pocket’ cryostat for tests on the electronics of interest.
  - Perform the first thermal balance test on the flight hardware.
  - Proposing a strategy for (non)destructive irradiation testing and X-ray circuitry diagnostics.



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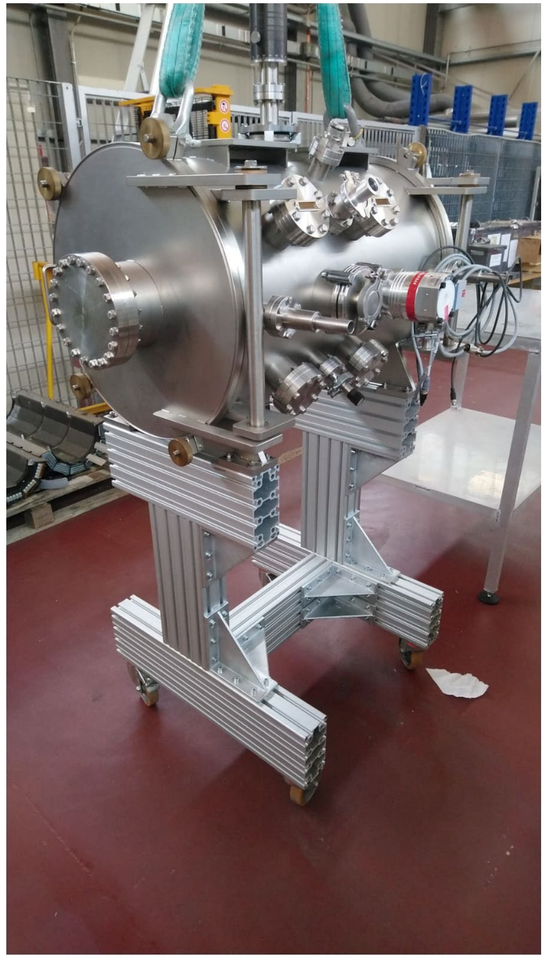

- **FTE (LNF):** L. Porcelli (RL, 40%), S. Dabagov (25%), G. Delle Monache (50%), D. Hampai (25%) + S. Savaglio (Unical, 50%) = 5 PP (1.90 FTE)
- **Richieste CSN2 2025 (overall, TBD):** missioni 5k, inventario …k, altri cons 5k, license SW …k, apparati …k, servizi …k
- **Richieste LNF 2025 (mesi-uomo):** Criogenia …; Elettronica …; Progettazione DR …; …
- **Fondi Esterni:** N/A