

QUBIC: Q and U interferometer for cosmology

Status of the project and prospects for 2024

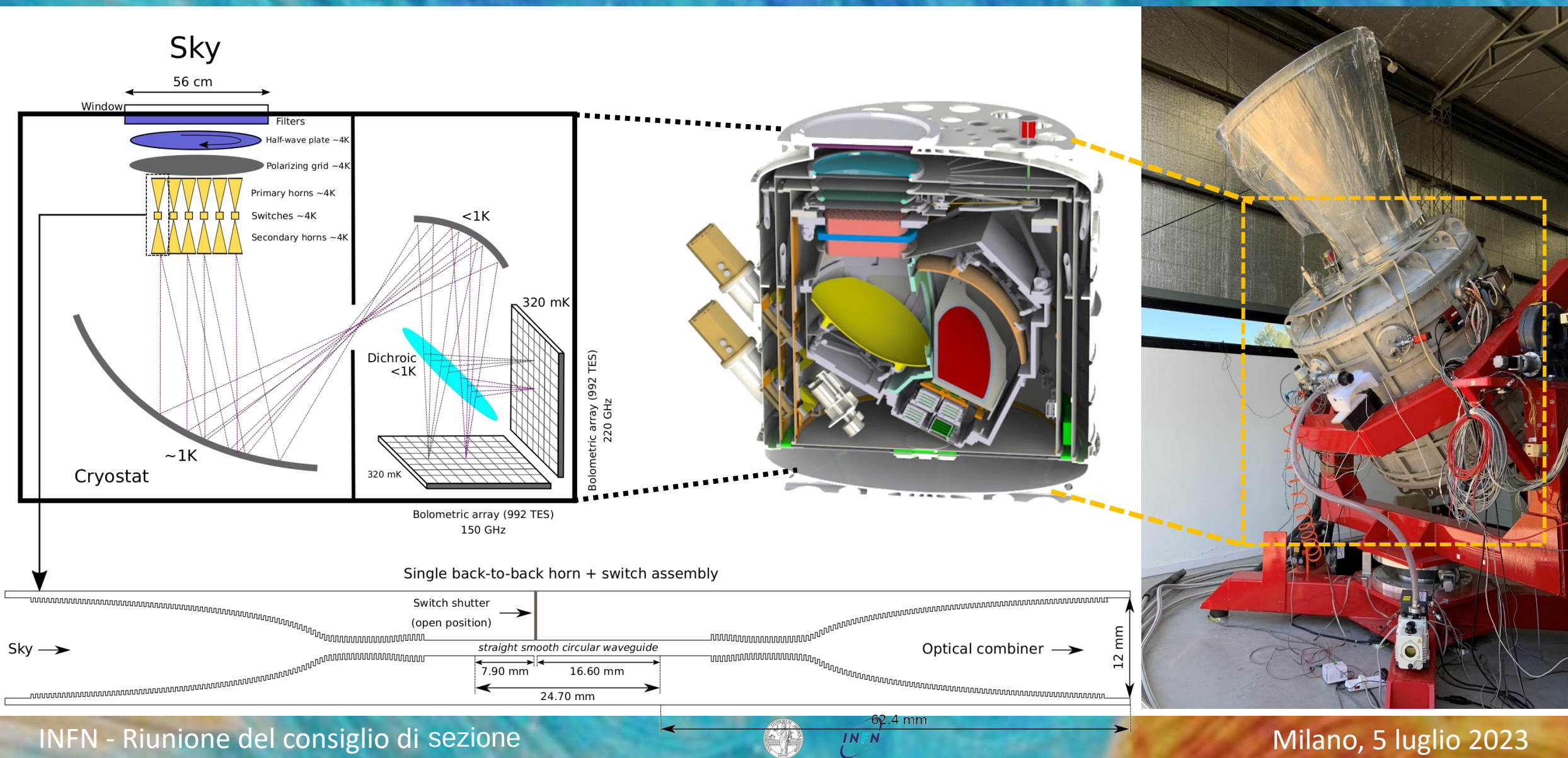
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INFN-Milan

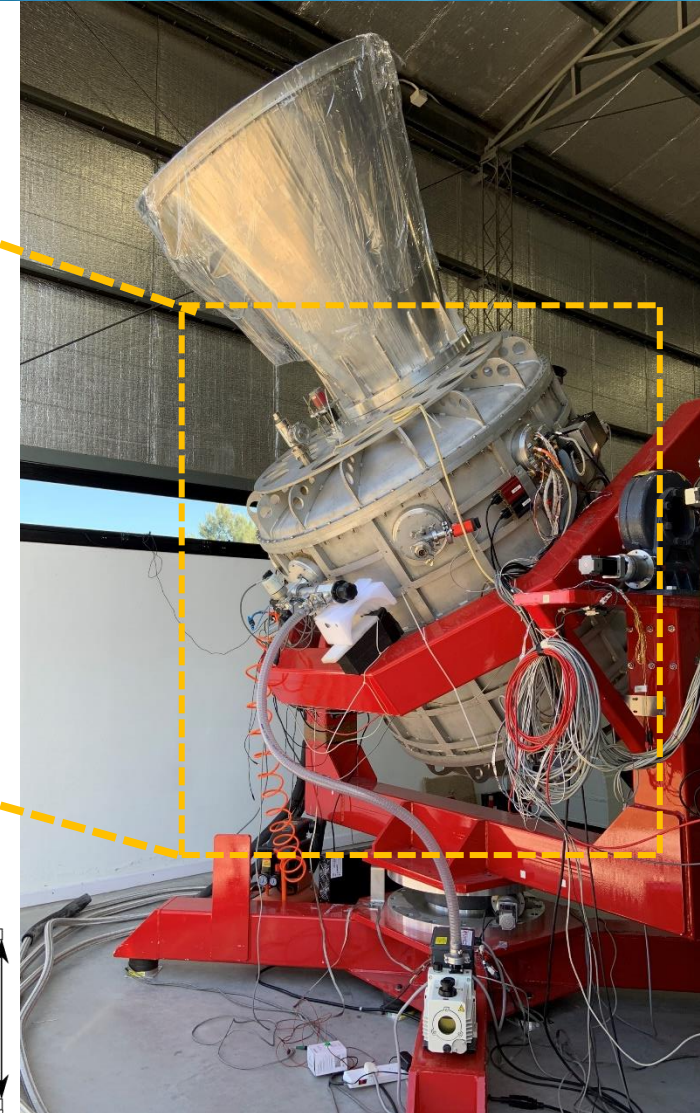
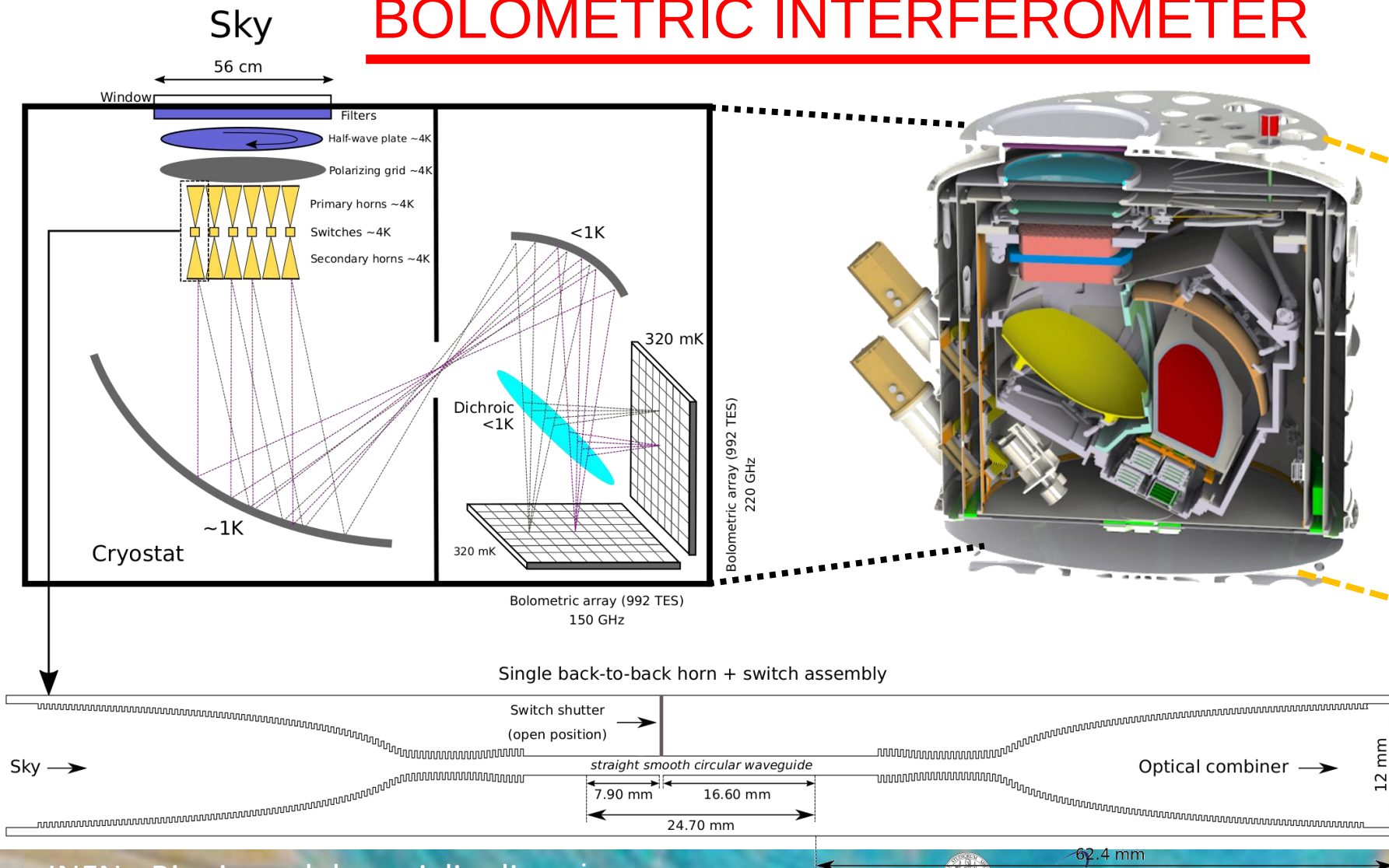


QUBIC in a nutshell – the instrument



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BOLOMETRIC INTERFEROMETER



Recent activities

QUBIC-TD installation at observation site and inauguration

- During October 2022 F. Cavaliere participated at the **installation** of the instrument at the Alto Chorrillo site in Argentina
- A. Mennella and E. Manzan participated to the **inauguration** on Nov. 23rd 2022



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Component separation

- Comparative study between Bolometric Interferometry (BI) and future ground-based experiments based on direct imaging for controlling Galactic spurious contamination [E. Manzan, L. Colombo, S. Paradiso, L. Zapelli (master thesis)]
 - **paper almost submitted (A&A)**
 - **15-min talk at the mm-Universe2023 Conference in Grenoble**
- Application of Fisher Matrix formalism to calculate uncertainties in derived parameters [E. Manzan, E. Lanfranconi (BSc thesis), L. Colombo]

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Scanning strategy and preparation for TD operations

- Development of scanning strategy simulation module [A. Mennella, N. Brancadori (master thesis)]
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- Study of atmospheric noise [E. Manzan]
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Collaboration board activities

- General collaboration management (A. Mennella + QUBIC collaboration board)
- Preparation of MoU for operations (A. Mennella + QUBIC collaboration board)

FTE Milano for 2024

Nome	Posizione INFN	Ruolo	Tempo
Marco Bersanelli	Associato INFN	Prof. Ordinario	50%
Cristian Franceschet	Associato INFN	Tecnologo	50%
Aniello Mennella	Associato INFN	Prof. Ordinario	70%
Loris Colombo	Associato INFN	Ricercatore	50%
Elenia Manzan	Associato INFN	Dottoranda	100%
Francesco Cavaliere	Associato INFN	Tecnico EP	30%

Funding requests for Milano for 2024

Tipologia	Richiesta [k€]	Sub Judice [k€]	Descrizione
Missioni	24	0	• 2 working meetings (10 days each) in Paris for pipeline development and science simulations (9k) • 2 European conferences (2 people, 5 days each meeting, 5k, SJ) • 1 travel to Argentina for TD operations (2 people for 15 days, 10.0k)
Totale	24		