

LHCb Upgrade II Tracking Workshop

Evian-les-Bains, 6-7 March 2024

*A huge thank you to Cindy !
And to all participants for doing
studies, making plots, presenting.
You make LHCb-U2 happen!*

Organising Committee:

Carla Marin Benito
Jianchun Wang
Kazu Akiba
Cesar Luiz da Silva
Mark Whitehead
Lucia Grillo

For the U2PG:

Paula Collins
Marcel Merk
Matthew Needham

LHCb Secretariat

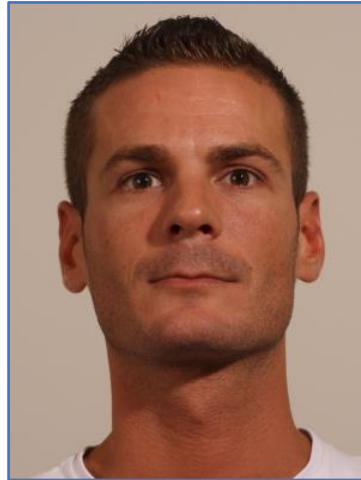
The LHCb secretariat team is composed of :

[Nathalie Grub](#)

[Cindy Denis](#)

[Kevin Viel](#)

[Shirin Davarpanah](#)



How to contact us

- Via email at : lhcb.secretariat@cern.ch
- Via phone at : +41.22.767.92.78
- Do not hesitate to pass by the secretariat directly 😊 !
We are located in the building 2, on the 1st floor in the office 24



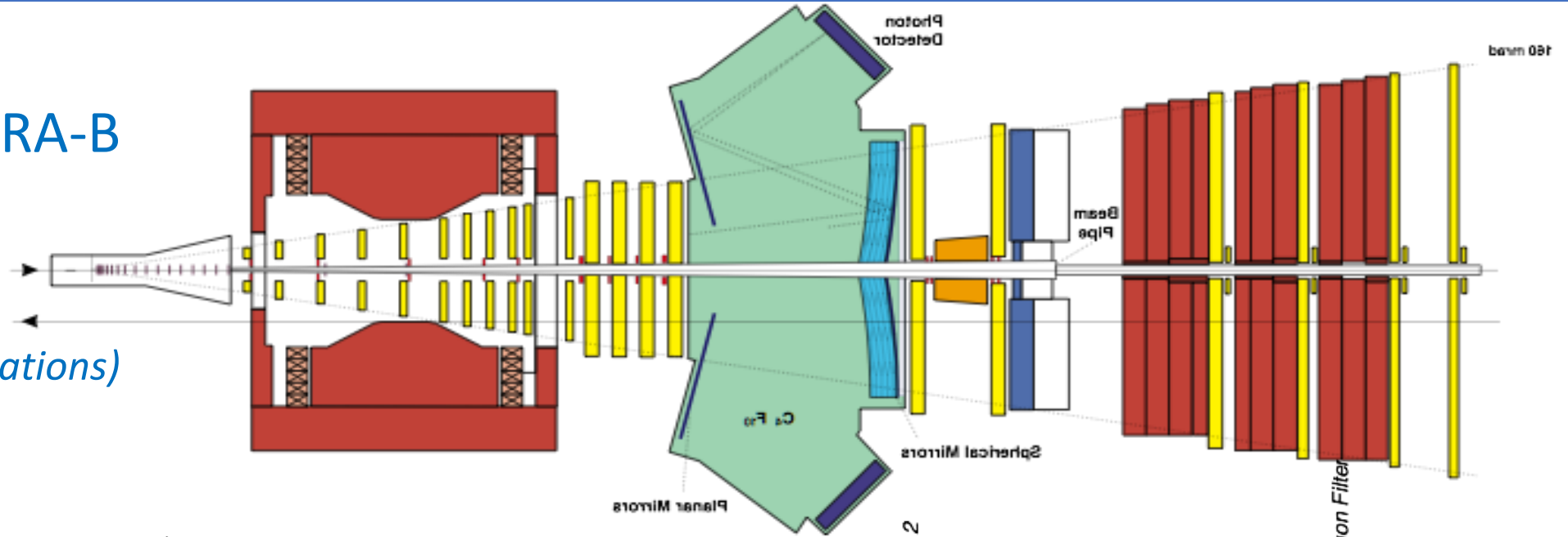
What services do we provide

- Administrative formalities (Invitation letters, attestations, Users contracts,...)
- Registration and membership management (Registrations, modifications & closures, CERN computing accounts...)
- LHCb visits at Pit 8 (Schedule, official guides information...)
- Events and meetings (Room bookings, Indico agendas, logistics...)
- Travels (For travels paid by CERN)
- Documentation (Management of CDS documentation, weekly news...)
- E-groups management (creation, modification...)
- Infrastructure (Space management, Economat and other orders...)
- Logistics (Key requests, mobility, CERN Housing services...)
- Accesses (Access requests, visitor cards...)
- *Do not hesitate to consult our dedicated webpage :*
[https://lhcb.web.cern.ch/lhcb_page/collaboration/Useful Information/Default.html](https://lhcb.web.cern.ch/lhcb_page/collaboration/Useful%20Information/Default.html)

Design/evolution the LHCb Spectrometer

Based on HERA-B
at DESY

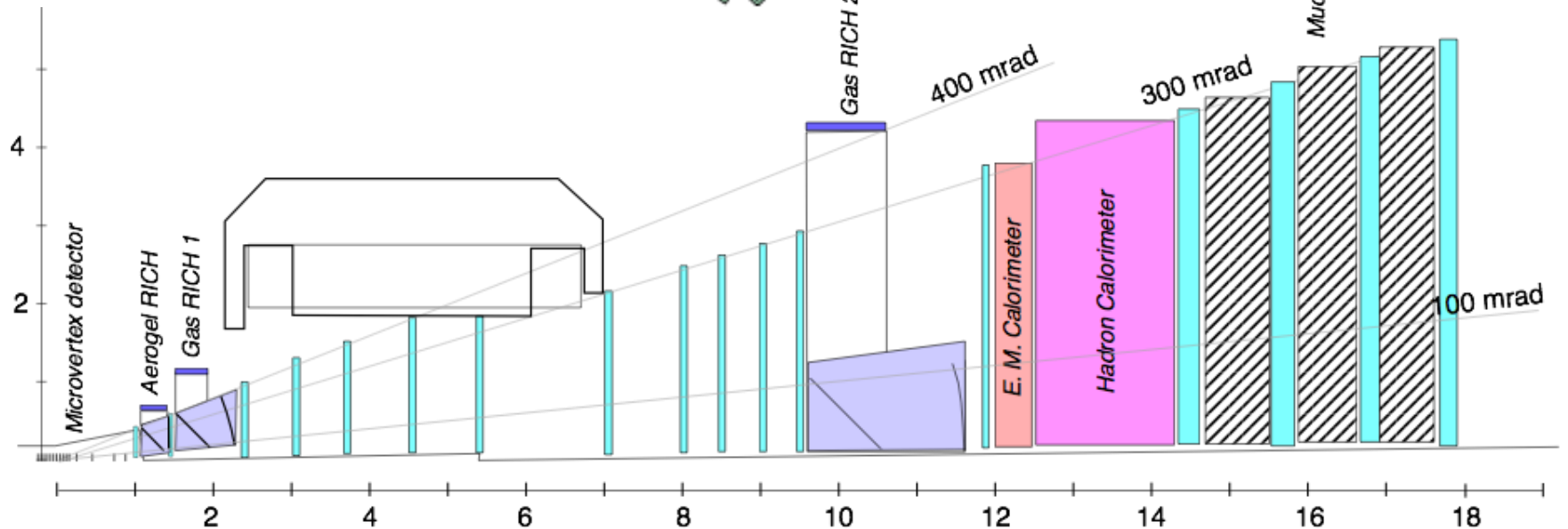
(many tracking stations)



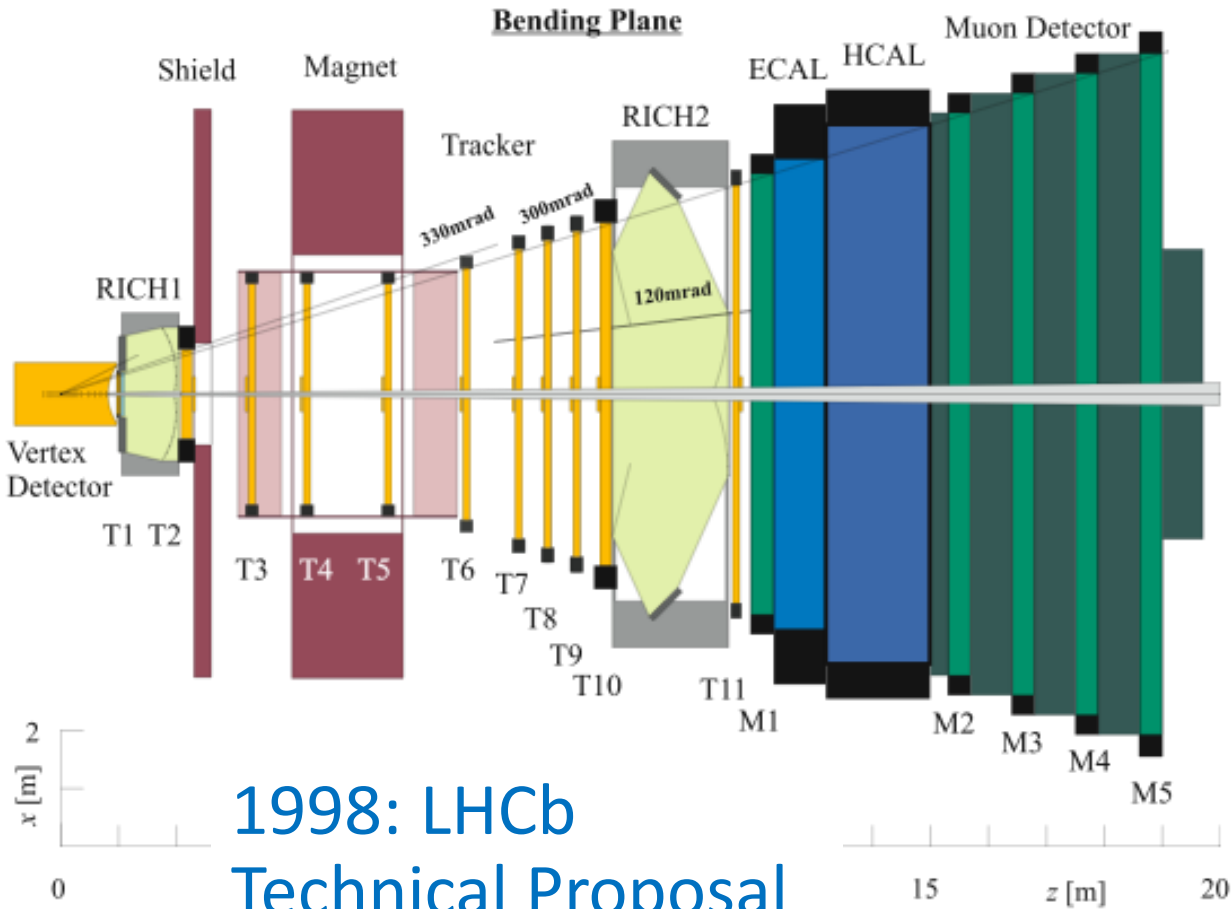
1995: LHCb
Letter of Intent

(13 tracking stations)

merger of COBEX,
Gajet and LHB
proposals

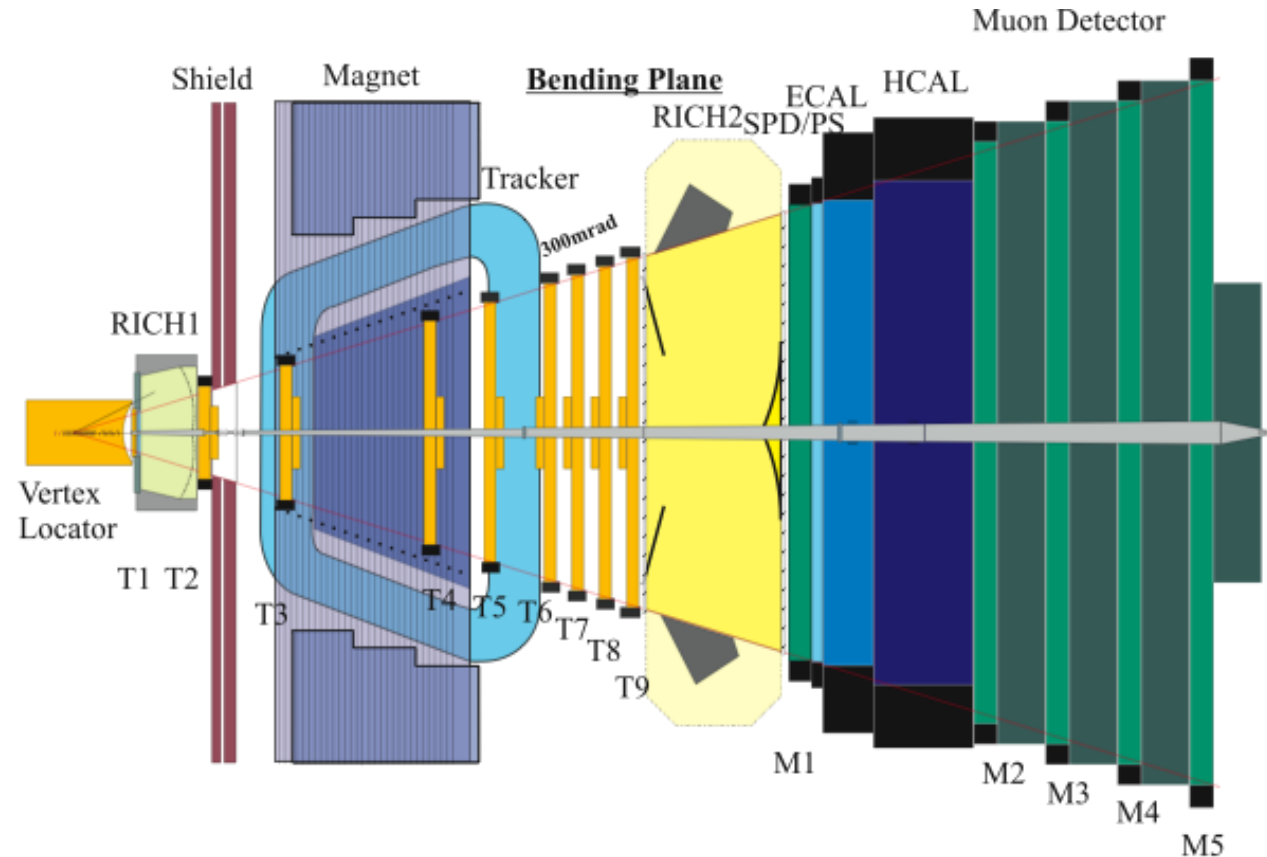


Design/evolution the LHCb Spectrometer

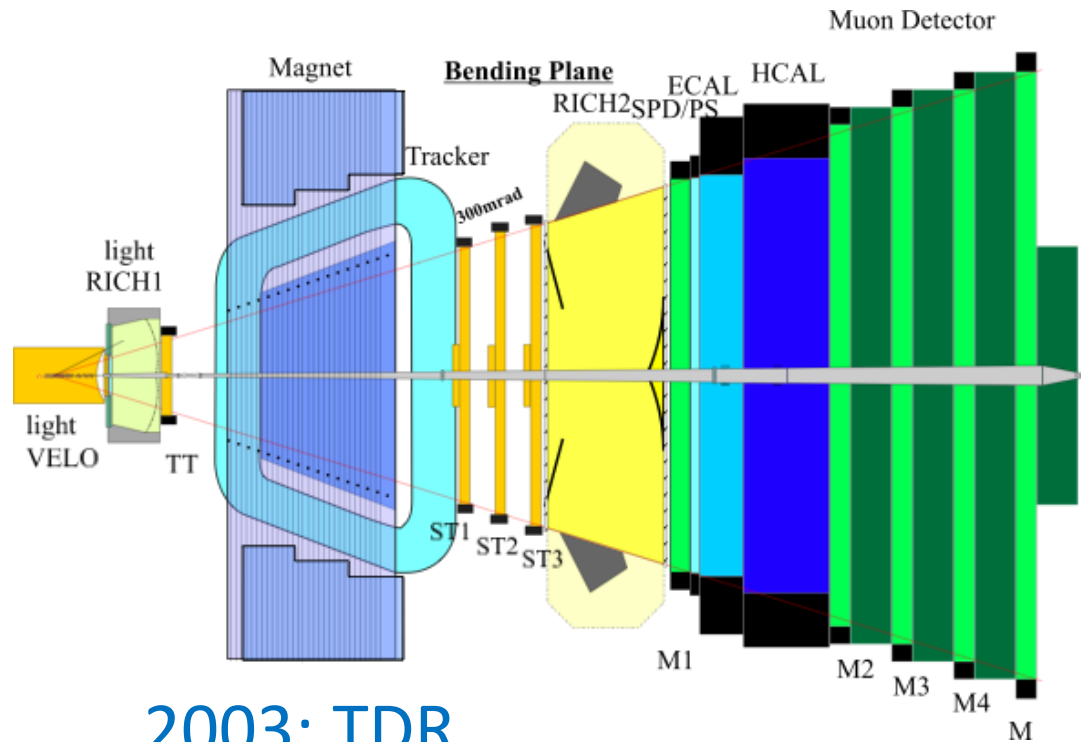


1998: LHCb
Technical Proposal
(11 tracking stations)

2001: LHCb
Outer Tracker TDR
(8 tracking stations)



Design/evolution the LHCb Spectrometer



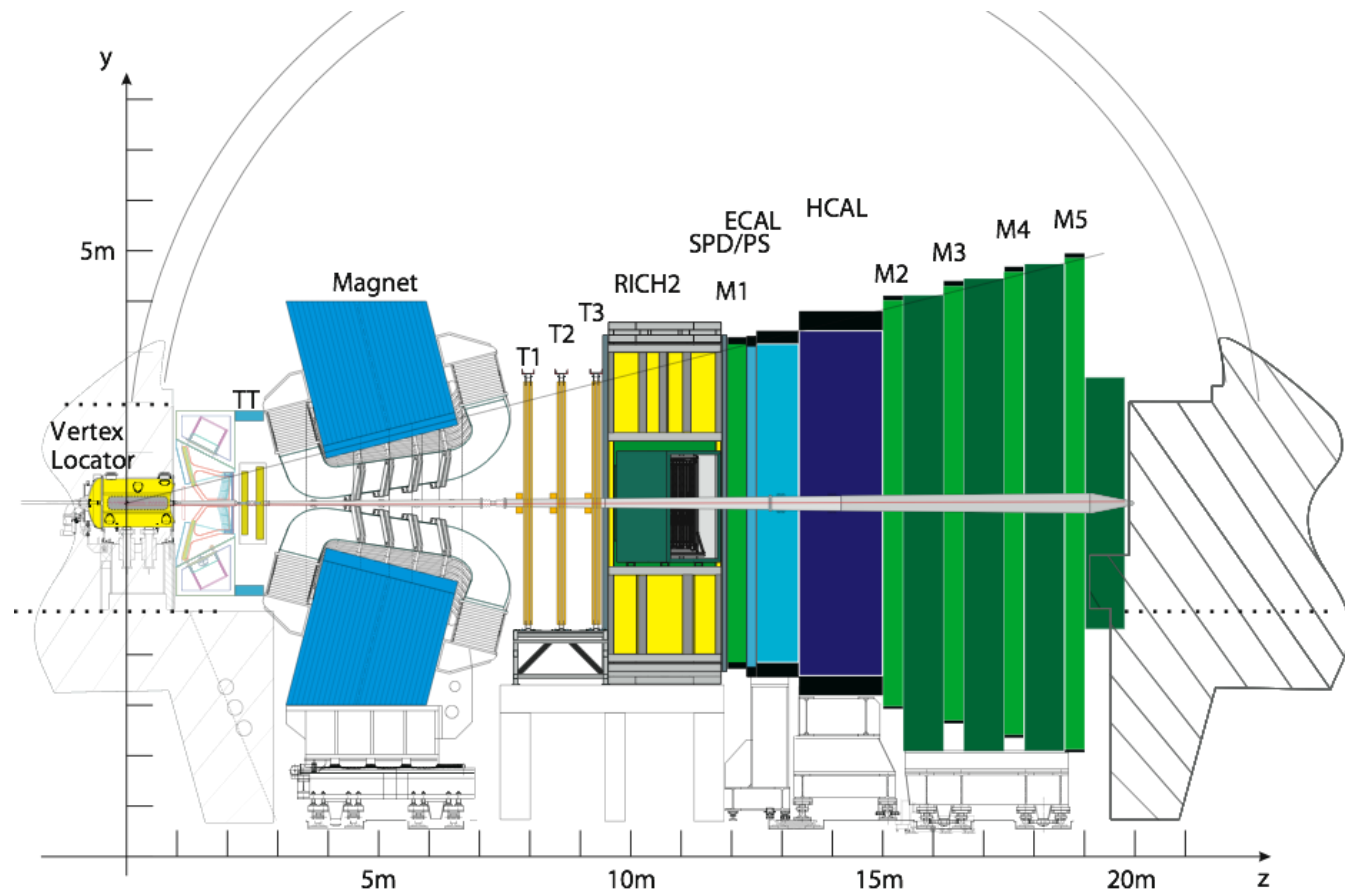
2003: TDR

Re-optimized LHCb

(4 tracking stations)

LHCb Run-1 and Run-2

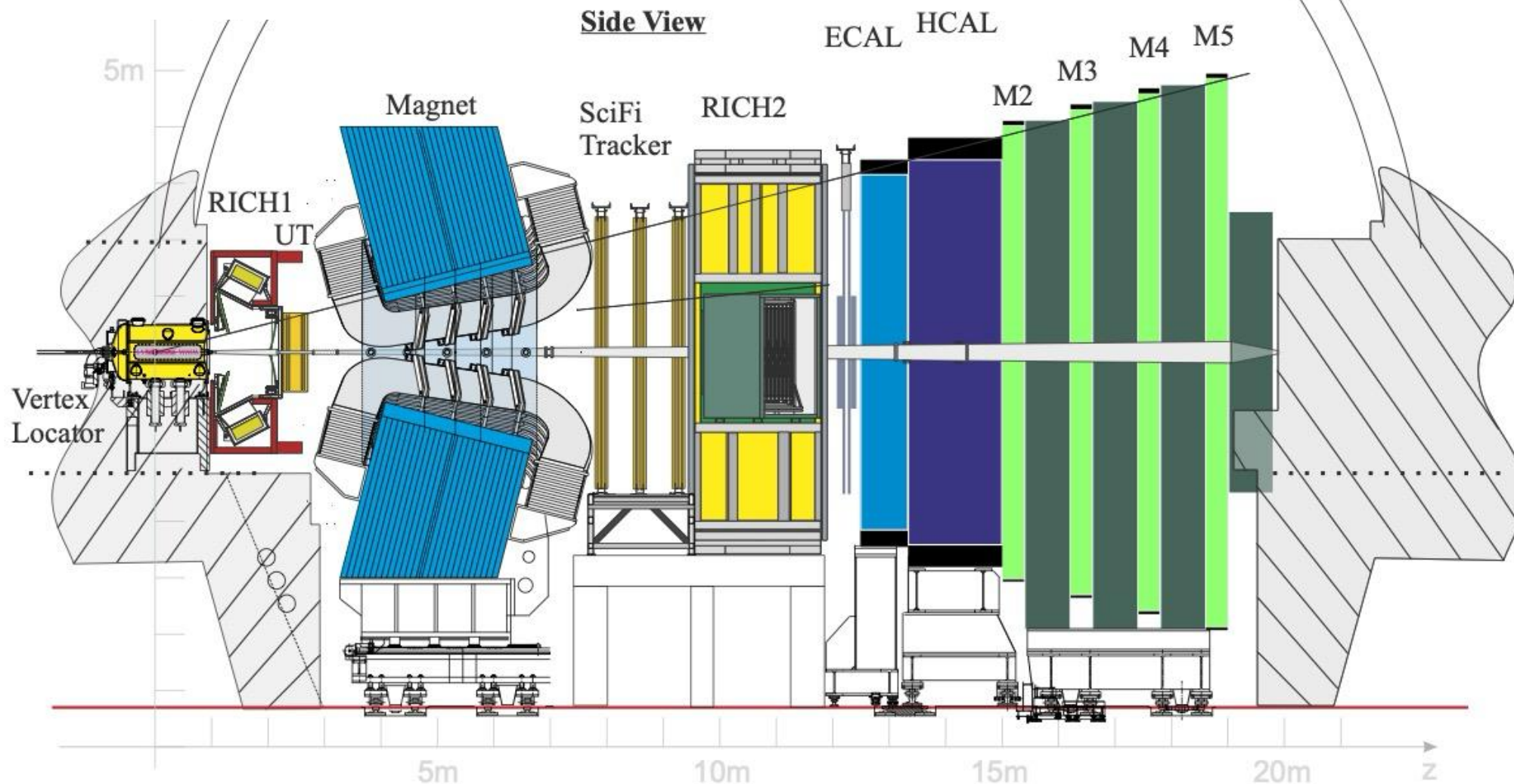
Spectacular Physics results!



Design/evolution the LHCb Spectrometer

LHCb Run-3

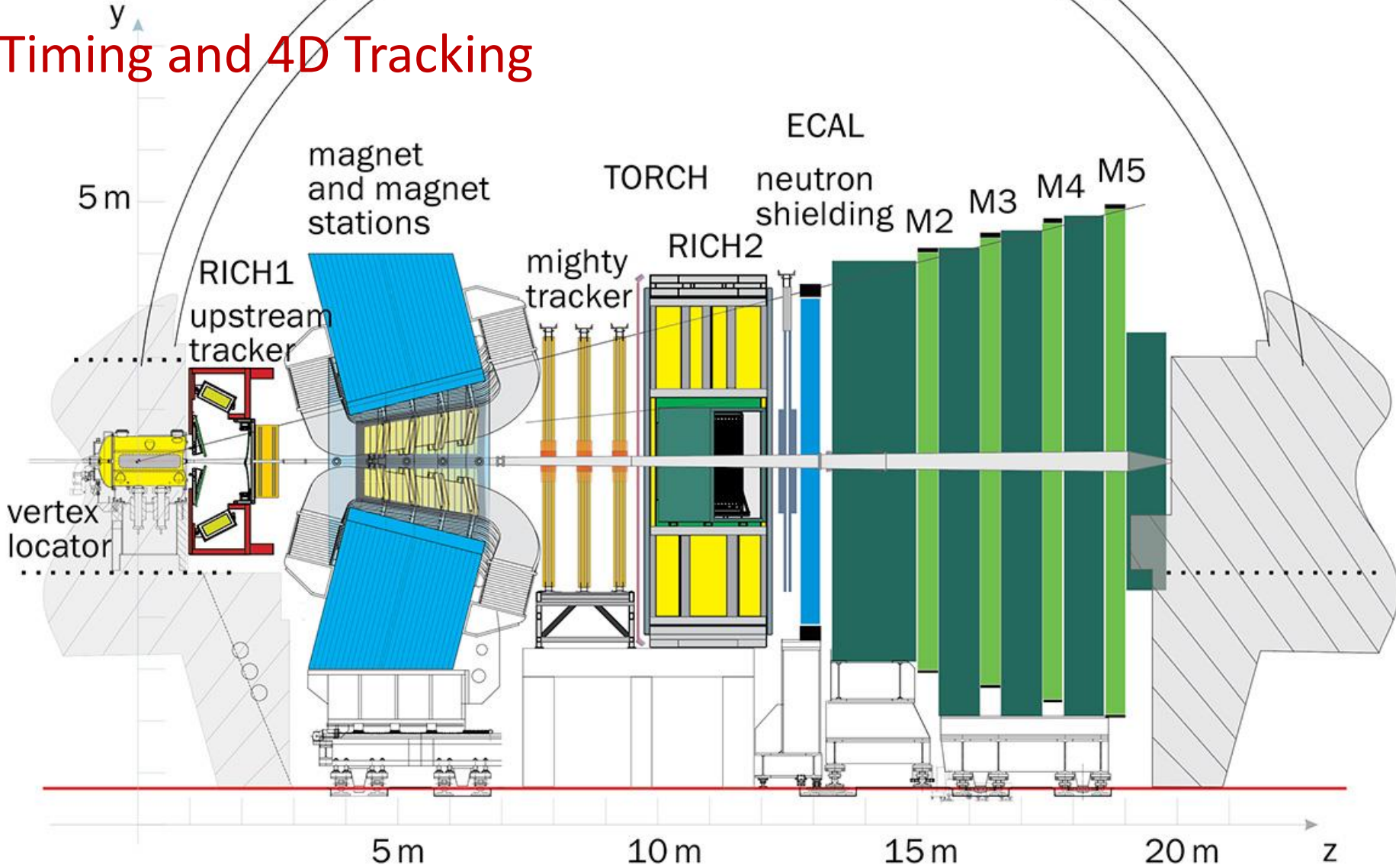
Real Time Analysis



Design/evolution the LHCb Spectrometer

2022: LHCb Upgrade-II: Framework TDR

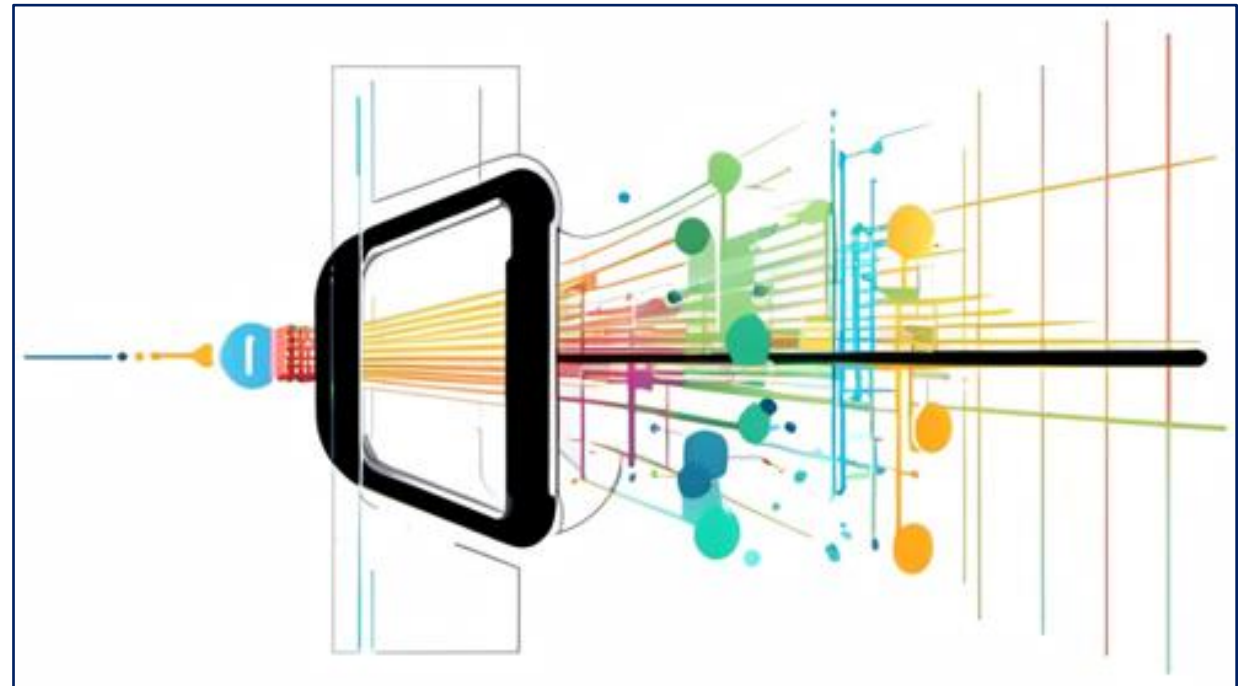
→ Fast Timing and 4D Tracking



Design/evolution the LHCb Spectrometer

2024: “Descoping Options” on request of LHCC

- Options: 100%, 85%, 70% of FTDR baseline cost
- Optimising:
 - Luminosity
 - Acceptance
 - Material thickness
 - Electromagnetic (X_0)
 - Hadronic (λ_I)
 - Real Time Analysis
 - Heterogeneous computing
 - Cost
- Preliminary results for April
- Full results for September LHCC



Design/evolution the LHCb Spectrometer

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Today's First Session:

- Two “general” talks:
 - Physics for tracking
 - UII baseline layouts
- General Discussion
- “Constraints” talks:
 - Physics, Radiation, Beam parameters, magnetic field, acceptance

First Session today

14:00	Welcome coffee <i>Hotel Hilton Evian les Bains, Evian-Les-Bains</i>	14:00 - 14:30
	Welcome <i>Hotel Hilton Evian les Bains, Evian-Les-Bains</i>	Marcel Merk  14:30 - 14:40
	Upgrade II Tracking for Physics <i>Hotel Hilton Evian les Bains, Evian-Les-Bains</i>	Fred Blanc et al. 14:40 - 15:00
15:00	UII baseline layouts <i>Hotel Hilton Evian les Bains, Evian-Les-Bains</i>	Renato Quagliani  15:00 - 15:20
	General Discussion <i>Hotel Hilton Evian les Bains, Evian-Les-Bains</i>	15:20 - 15:40
	Physics channels for scoping document and beyond and beam parameters <i>Hotel Hilton Evian les Bains, Evian-Les-Bains</i>	Matteo Palutan et al. 15:40 - 16:10
16:00	FLUKA simulations for UII environment <i>Hotel Hilton Evian les Bains, Evian-Les-Bains</i>	Matthias Karacson  16:10 - 16:30
	UII Magnetic field changes and constraints <i>Hotel Hilton Evian les Bains, Evian-Les-Bains</i>	Marie Bachmayer 16:30 - 16:50
	UII eta acceptance studies <i>Hotel Hilton Evian les Bains, Evian-Les-Bains</i>	Mary Richardson-Slipper 16:50 - 17:10
17:00	Coffee Break <i>Hotel Hilton Evian les Bains, Evian-Les-Bains</i>	17:10 - 17:30