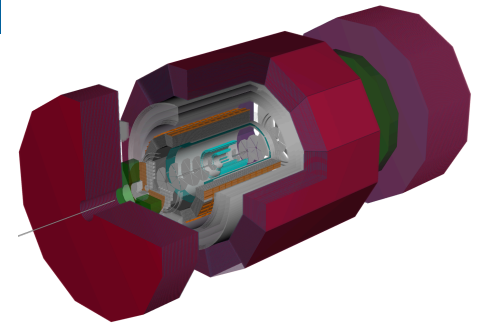


ATHENA PROPOSAL OUTLINE DRAFT.....



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INSTRUCTIONS FROM THE CALL FOR COLLABORATION PROPOSALS

Things to keep in mind

The Proposals should include two parts:

- A description of the science addressed and performance estimated through simulation including, but not limited to, e/γ , jets, $\pi/K/p$ separation, vertex, and tracking, and how the simulated performance compares to the requirements detailed in the YR. The realization of the conceptual detector design given the technology choices, the R&D needs, risks, and, if applicable, adoption technologies.
- A collaboration roster and structure, time scale and cost (including potential sources of funding and assumptions), and potential upgrade paths.
- If possible, the proposal should not exceed 60 pages, 40 pages for the first part and 20 pages for the second.

OUTLINE

Chapter I

- Introduction
 - Science questions (narrative) with a summary table for quick mapping of the detector performance to the golden channels.

Science questions?	“Adjective”Channels	Critical Detector Subsystem (performance criterion YR vs ATHENA opt)	ATHENA subsystem performance with ATHENA Tech. choice (Fig. #)	ATHENA full Detector Performance for golden channel (Fig. #)
Origin of mass				
Origin of spin/3D-transverse imaging <ul style="list-style-type: none"> • Position • Momentum 				
Ultra-dense gluonic matter				
Hadronization-Jets				

OUTLINE (CONTINUED)

Narrative on the experimental “adjective” channels & requirements

- Experimental “ adjective” channels:
 - In inclusive; ep-- (gluons: mass and spin), eA (ultra-dense gluons)
 - In semi-inclusive;
 - ep-- (spin, 3D transverse momentum imaging of quarks[through hadrons] and gluons[through jets])
 - eA --hadron(s)/jet formation and propagation through nuclear matter (with hadrons and jets of hadrons)
 - In exclusive; ep (mass, 3D transverse gluons/quarks position imaging) and eA (gluon/quarks 3D transverse imaging, medium effects, ultra-dense gluonic matter)
- End-to-end simulations of one “chosen” channel per each NAS report science question showcasing the performance of the whole detector as examples. A more in depth discussion in Chapter II).
- Discuss a preamble to the detector challenges before entering Chapter II, especially those not identified in the YR.

OUTLINE (CONTINUED)

Chapter II. The ATHENA DETECTOR CONCEPT

- The ATHENA detector concept
 - Overall detector and each subsystem description with technology choices
 - Performance of each subsystem and of the whole detector
 - Mapping to the detection challenges described in Chapter I.
 - Impact on the golden channels with end-to-end simulations (figures not presented in Chapter I)
 - Highlight novel technologies when required and discuss the R&D and risk
- Far-forward detection in concert with central detector
 - Protons
 - Neutrons
 - Recoil nuclei (intact or broken)
- Polarimetry? Common to both ATHENA & ECCE

OUTLINE (CONTINUED)

Chapter III

- A collaboration roster and structure,
- Time scale and
- Cost (including potential sources of funding and assumptions),
- Potential upgrade paths.

NEXT STEPS

Physics WGs and Detector WGs input to CHAPTER I, II

- Continue developing the outline and iterating with the WGs
- Flesh out the golden channels with a clear map to the science questions of WP and NAS report. Will need one or two science <--> detector maps for clarity.
- Identify and confirm the physics validation and detector performance plots

Integration and Costing Committee input to Chapter II, III

THANK YOU!
QUESTIONS?



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