

Initiation of joint ECCE & ATHENA working groups [Draft for discussion]

Following the DPAP report, the EIC project adopted the ECCE design as the reference design for detector 1. As stated in their joint statement, the ECCE and ATHENA proto-collaborations are committed to work together to leverage the body of work in the YR process, the detector proposals, and the EIC detector R&D program to realize a comprehensive, general-purpose EIC experiment and to work with the community, as a whole, towards realizing the EIC science program.

While collaboration formation process is ongoing, the EIC project and proto-collaborations wish to start working on the reference design optimization and consolidation phase, with the goals to:

- Integrate new collaborators in a manner that enables them to make contributions that impact the capabilities and success of the experiment in significant ways, including new collaborating individuals and groups into positions of responsibility and leadership;
- Integrate new experimental concepts and technologies that improve physics capabilities without introducing inappropriate risk.
- Advance the Project Detector to CD2/3a in a timely way (this includes starting a phase towards a pre-TDR for CD-2/3a and a TDR at CD-3).

Practical aspects to be considered during this phase include: allowing working groups to work together in a constructive, accommodating and welcoming (pleasant) environment, the use of the BaBar 1.5T Solenoid, and the consideration of both science impact as well as impact on cost, schedule, and technical risk.

To this end, the proto-collaborations are setting up joint Working Groups listed below.

The global charge for the detector groups is:

- The overall goal of the detector WG's is to optimize the ECCE reference design towards a technical design within the constraints listed above. In working towards this goal, the DWG's should collaborate with existing detector consortia (EICSC, EEEMCAL, MPGD, DIRC, DRICH, AC-LGADs, etc.), all detector R&D efforts relevant for Detector-1, and any additional efforts within the EIC scientific community.

- All working groups will work closely with the Global detector / integration working group and the EIC project towards a technical design that optimizes the global detector performance, taking into account global integration and physics performance.
- Each joint WG should hold at least one kickoff meeting where the designs of each proposal are presented in detail. It is critically important that WG members understand the scientific and technical reasoning behind different design choices before engaging in optimization discussions.
- The WG conveners will lead a discussion to identify any non-trivial differences and/or aspects in need of further optimization.
- For each non-trivial difference working groups will then work to prepare a pro/con list accounting for technical performance, risk and cost. The resolution of non-trivial differences should be discussed in close consultation with the Global detector/integration WG, physics working groups, the EIC project, relevant detector consortia and R&D efforts.

The global charge for the physics studies groups is:

- Work with the Detector Working Groups to perform constant validation of the performances for physics observables. Emphasis should be placed on studies of key physics processes in the NAS report, the EIC whitepaper, Yellow Report, and detector proposals.
- When alternative technological solutions are examined, work with the detector groups to provide quantitative information on the physics performance of the proposed solutions.
- In collaboration with the Computing/Software and Simulations WGs, further develop simulation and data analysis tools. Organize workshops as needed to provide training in the use of these tools for collaborators.
- Over time, extend the existing scope of physics processes being studied, with an emphasis on those processes called out by the DPAP as being significant for the science program and yet not studied by the proto-collaborations.

The charge for the Computing/Software working group is:

- (To be added after consultation with the Computing/Software and Simulations WG conveners.)

Proposed working groups and specific aspects they should address beyond the global charge listed above:

- Tracking
 - Conveners: Xuan Li <xuanli@lanl.gov>, Kondo Gnanvo <kagnanvo@jlab.org>, Laura Gonella <laura.gonella@cern.ch> , Francesco Bossu <francesco.bossu@cea.fr>
 - WG specific charge items (in addition to global charge)
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- Calorimetry
 - Conveners: Friederike Bock <Friederike.Bock@cern.ch>, Carlos Munoz Camacho <munoz@jlab.org>, Oleg Tsai <tsai@physics.ucla.edu>, Paul Reimer <reimer@anl.gov>
 - WG specific charge items (in addition to global charge)
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- Cherenkov PID
 - Conveners: Xiaochun He <xhe@gsu.edu>, Grzegorz Kalicy <kalicy@cua.edu>, Tom Hemmick <tkhemmick@gmail.com>, Roberto Preghenella <preghenella@bo.infn.it>
 - WG specific charge items (in addition to global charge)
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- TOF PID (AC-LGADs)
 - Conveners: Wei Li <wl33@rice.edu>, xx, Franck Geurts <geurts@rice.edu>, Zhenyu Ye <yezhenyu@uic.edu>
 - WG specific charge items (in addition to global charge)
 - Given the especially large R&D challenge associated with AC-LGADs, the WG should place special emphasis on risk mitigation via fallback solutions development.
- Far Forward
 - Conveners: Michael Murray <mjmurray@ku.edu>, Yuji Goto <goto@bnl.gov>, Alex Jentsch <ajentsch@bnl.gov>, John Arrington <JArrington@lbl.gov>
 - WG specific charge items (in addition to global charge)
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- Far Backward
 - Conveners: Igor Korover <korover@mit.edu>, Nick Zachariou <nick.zachariou@york.ac.uk>, Krzysztof Piotrkowski <krzysztof.piotrkowski@cern.ch>, Jaroslaw Adam <jaroslavadam299@gmail.com>
 - WG specific charge items (in addition to global charge)

- - DAQ / Electronics / Readout
 - Conveners: Chris Cuevas <cuevas@jlab.org>, Jo Schambach <schambachjj@ornl.gov>, Alexandre Camsonne <camsonne@jlab.org>, Jeff Landgraf <jml@bnl.gov>
 - WG specific charge items (in addition to global charge)
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 - Computing and SW
 - Conveners: Cristiano Fanelli <cfanelli@mit.edu>, David Lawrence <davidl@jlab.org>, Wouter Deconinck <wouter.deconinck@umanitoba.ca>, Sylvester Joosten <sjoosten@anl.gov>

- Global detector / integration
 - Conveners: Peter Steinberg <steinberg@bnl.gov>, xx, Thomas Ullrich <thomas.ullrich@bnl.gov>, Silvia Dalla Torre <Silvia.DallaTorre@cern.ch>
 - WG specific charge items (in addition to global charge)
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- Simulation production and QA
 - Conveners: Joe Osborn <orbornjd@ornl.gov>, xx, Andrea Bressan <Andrea.Bressan@cern.ch>, Zhoudunming (Kong) Tu <zhoudunming@bnl.gov>.
 - WG specific charge items (in addition to global charge)
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- Inclusive
 - Conveners: Tyler Kutz <tkutz@mit.edu>, Claire Gwenlan <claire.gwenlan@physics.ox.ac.uk>, Barak Schmookler – <barak.schmookler@stonybrook.edu>, Paul Newman <paul.richard.newman@cern.ch>
 - WG specific charge items (in addition to global charge)
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- Semi-inclusive
 - Conveners: Ralf Seidl <rseidl@ribf.riken.jp>, Charlotte Van Hulse <cvanhuls@mail.cern.ch>, Anselm Vossen <anselm.vossen@duke.edu>, Marco Radici <marco.radici0@gmail.com>
 - WG specific charge items (in addition to global charge)

- - Exclusive, Diffraction, & Tagging
 - Conveners: Axel Schmidt <axelschmidt@gwu.edu>, Rachel Montgomery <Rachel.Montgomery@glasgow.ac.uk>, Spencer Klein <srklein@lbl.gov>, Daria Sokhan <Daria.Sokhan@glasgow.ac.uk>
 - WG specific charge items (in addition to global charge)
- - Jets & Heavy Flavor
 - Conveners: Cheuk-Ping Wong <cpwong@lanl.gov>, Wangmei Zha <first@ustc.edu.cn>, Miguel Arratia <miguela@ucr.edu>, Brian Page <bpage@bnl.gov>
 - WG specific charge items (in addition to global charge)
- - BSM & precision EW
 - Conveners: Xiaochao Zheng <xiaochao@jlab.org>, Sonny Mantry <Sonny.Mantry@ung.edu>, xx, xx.
 - WG specific charge items (in addition to global charge)
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