Yellow Report – Detector Working Group

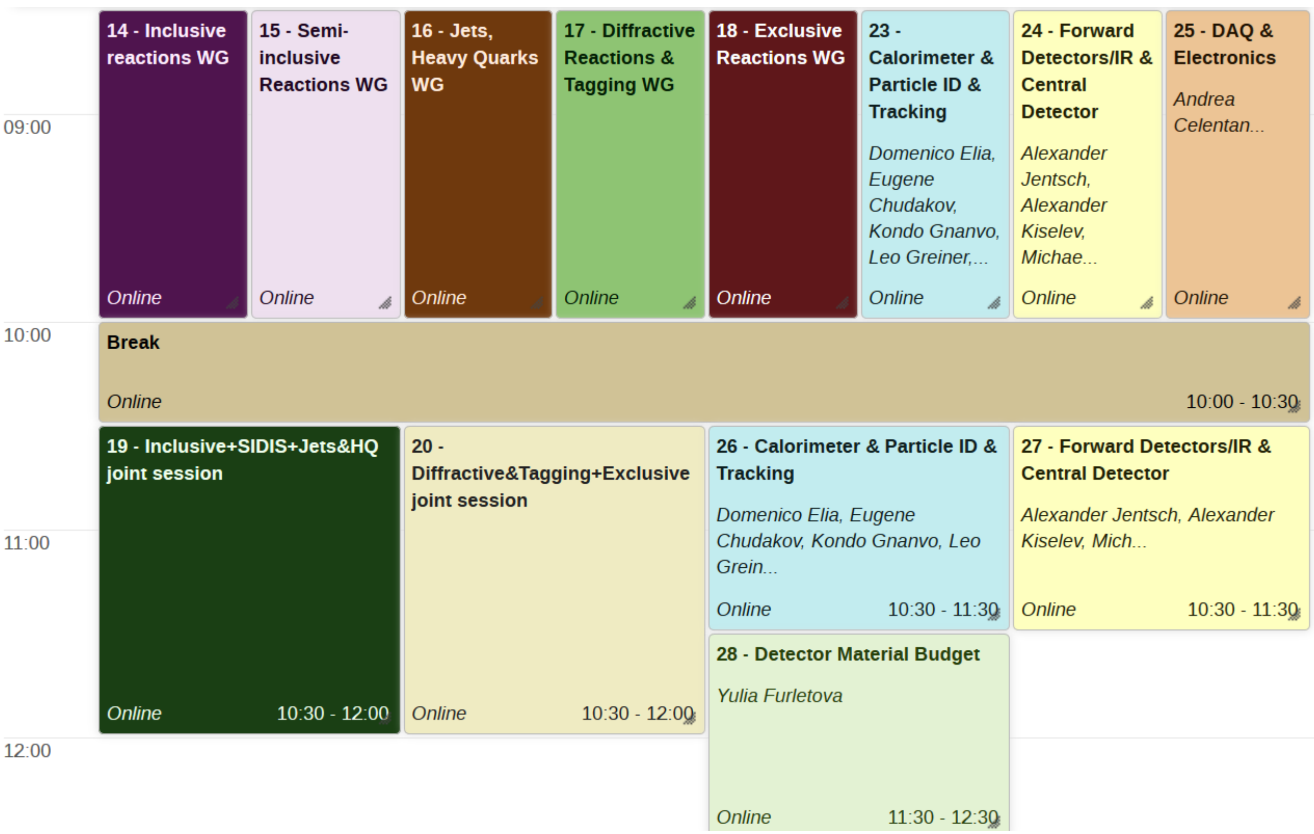
Conveners: Ken Barish (UC Riverside), Tanja Horn (CUA), Peter Jones (U. Birmingham), Silvia Dalla Torre (Trieste/INFN)

- Eight Working Groups – two have been working together since the start
  - **Tracking (+vertexing),** Conveners: Kondo Gnanvo (UVA), Leo Greiner (LBNL), Annalisa Mastroserio (INFN), Domenico Elia (INFN)
  - **Particle ID**, Conveners: Tom Hemmick (SBU), Patrizia Rossi (JLab)
  - **Calorimetry (EM and Hadronic),** Conveners: Vladimir Berdnikov (CUA), Eugene Chudakov (JLab)
  - **Far-Forward Detectors**, Conveners: Alexander Jentsch (BNL), Michael Murray (Kansas)
  - **DAQ/Electronics**, Conveners: Andrea Celentano (INFN), Damien Neyret (CEA Saclay)
  - **Polarimetry/Ancillary Detectors**
    - Conveners: Elke Aschenauer, Dave Gaskell
  - **Central Detector/Integration & Magnet,** Conveners: Willliam Brooks, Alexander Kiselev (BNL)
  - **Forward Detector/IR Integration,** Convener: Yulia Furletova (JLab)
  - **Infrastructure and Installation,** Convener: TBA
  - **Detector Complementarity,** Conveners: Elke Aschenauer (BNL), Paul Newman (Birmingham)
- All detector working groups are very active and have made good progress
  - All have regular meetings – most posted in Google calendar
  - Complementarity group added a convener: P. Newman (U. Birmingham)

Yellow Report – Detector Working Group

- The level of advancement is diverse as starting points are different
- In a synergistic effort some groups have already initiated joint meetings with some or all of the DWGs – will see such joint efforts at this meeting and even more at the CUA YR Workshop

Thursday morning sessions



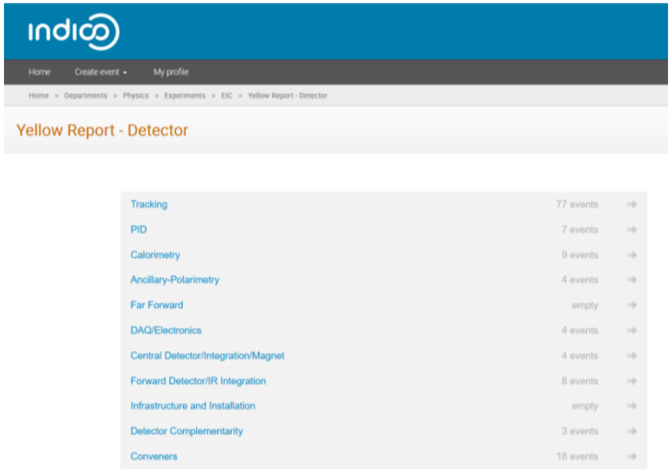
Towards joint discussion of topics

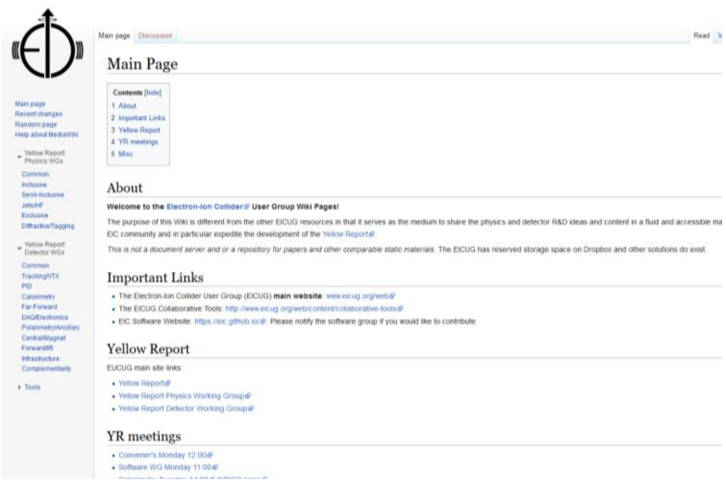
Selected Yellow Report Collaborative Tools

Groups have started implementing/developing the tools into the workflow

- **Indico**: archives meetings, discussion material, notes

  https://indico.bnl.gov/category/274/





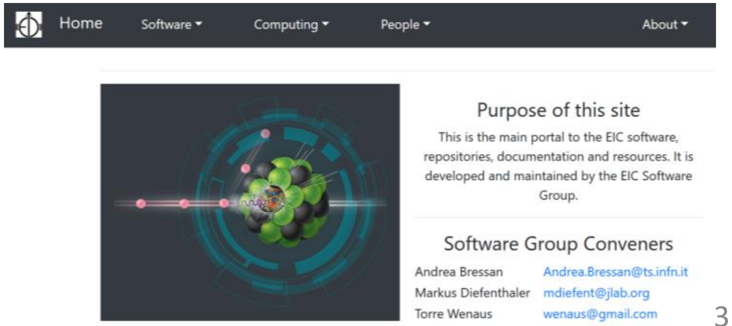
- **EIC Wiki**: Storage of documentation, e.g. manuals

  https://wiki.bnl.gov/eicug/index.php/Main_Page

- **Dropbox**: Storage of larger files

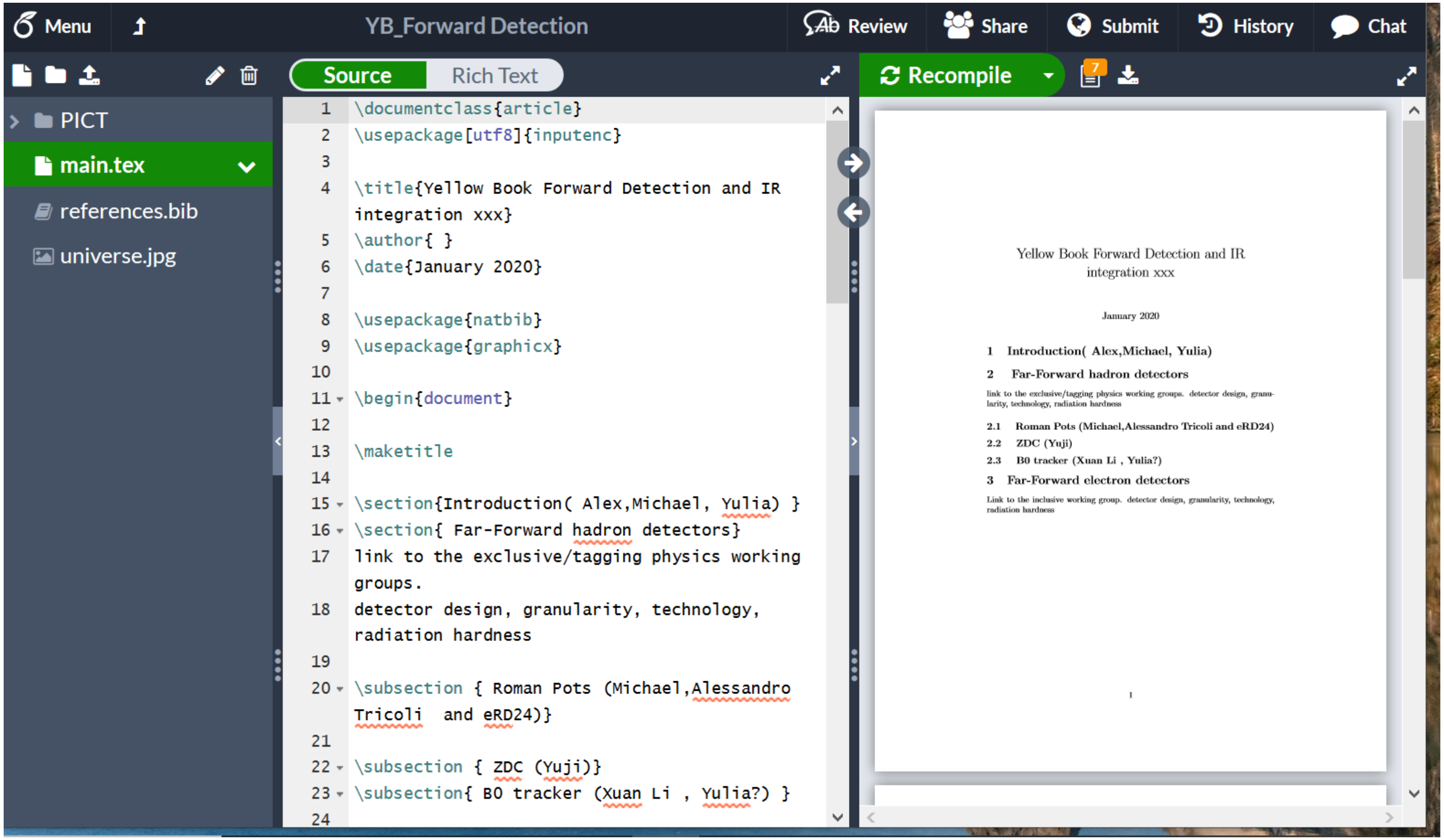
- **GitHub Pages**: Software documentation

  https://eic.github.io/



Yellow Report – Detector Working Group

- Some groups have started documentation towards the Yellow Report
  - Writing tool: Overleaf



Information Work Flow between PWG+DWG

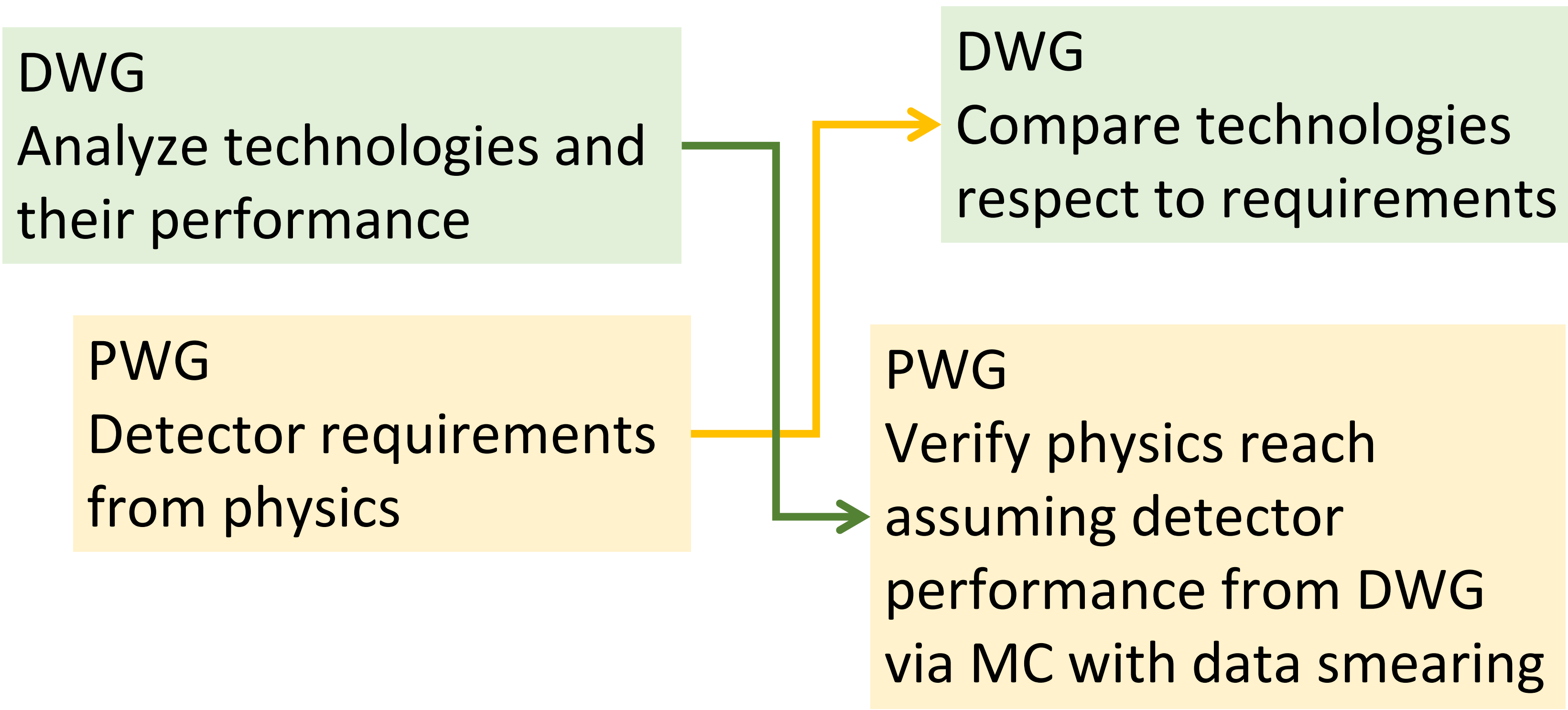
Discussion on Thursday 16:00-17:30 (ET) Joint Session Part 4

- Two types of information to consider regarding communication about requirements from physics and performance of different detector technologies
  - **Updates, e.g. requirements from PWG**
  - **Iteration, e.g. the "response" from DWG informed by performance of different technologies and iteration**

Suggested Scheme of the activity flow

Discussion on Thursday 16:00-17:30 (ET) Joint Session Part 4

- for discussion
- purpose: general agreement before defining procedure details
- the arrows indicate INFORMATION FLOW



YR Overall Timeline and Goals

http://www.eicug.org/web/content/yellow-report-initiative

Date 2020	Event	Goals
March 19-21	1st Workshop	present **progress for various groups and sub-groups**, with much discussion and work time**, initiate detector complementarity study** based on detector technologies
May 22-24	2nd Workshop	present **initial** physics measurements and **detector requirements** following five chosen processes/tools (inclusive measurements, semi-inclusive measurements, jets and heavy quarks, exclusive measurements, diffractive measurements & tagging), present **detector concepts and implications for physics measurements. Complete detector requirements table including segmentation needs.**
August 3-7	EICUGM	Conveners/sub-conveners inform community about status and progress. Conveners identify possible issues (if any) in meeting with EICUG Steering Committee.
Sept 17-19	3rd Workshop	present **mature studies** of detector requirements from physics processes, **balance detector concepts versus impact on physics measurements**. Discuss **possible systematics reduction among complementary detector choices**. Complete final "to-do" list for YR(s).
Nov 19-21	4th Workshop	distribute draft YR sections before meeting

With CD-0 and Site selection made, expect the expedited timeline with Yellow Report release in January 2021

DWG and YR Timeline

http://www.eicug.org/web/content/yellow-report-initiative

The main mandate of the Yellow Report is to consider and compare all possible technologies for two EIC detectors.

- The YR timeline is very short and it may not be possible to complete the study of all technologies up to the end within this timeframe.
- Therefore, even if it is clear that we would like to make significant progress, e.g. towards reconstruction, it is likely that we will have to rely on some parameterizations for a while.
- Since time is short it is important to focus on the main priorities first. In particular for simulation development, one has to make choices, e.g. between (1) complete Geant4 simulation including all materials, support structures, and a downselect of a subset of possible technologies and (2) intermediate Geant4 simulations keeping the path open to alternative technologies. Option (2) better answers the YR main mandate

The DWG follows option (2)**,** to **keep the path open to alternative technologies,** which better answers the YR mandate

DWG specific goals

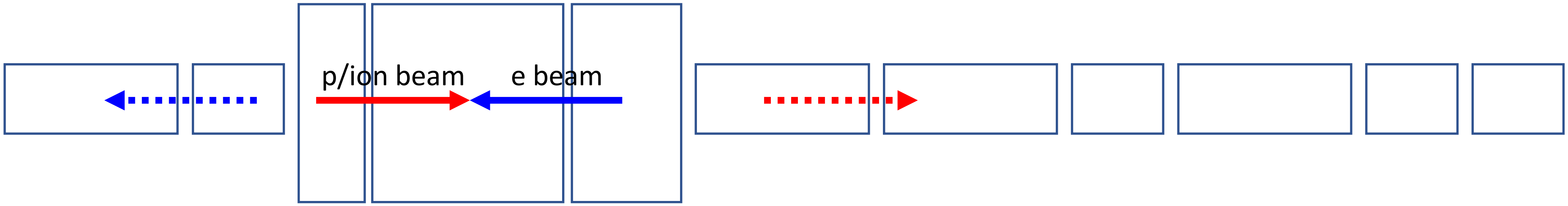
http://www.eicug.org/web/content/yellow-report-initiative

- **Develop a strategy for each subgroup to meet the overall goals, e.g.**
    - Define tasks and deliverables
    - Identify resources
    - Develop a plan for interaction with PWG and SWG

- **Start collecting for each technology input for detector complementarity studies (information collection will continue in the next months at least till the August meeting), e.g.**
    - Performance (momentum, energy resolution, material budget, …)
    - What drives the systematics of a detector using this technology
    - Time needed until the technology is ready for mass production and available workforce

Cartoon/Model of the Extended Detector and IR

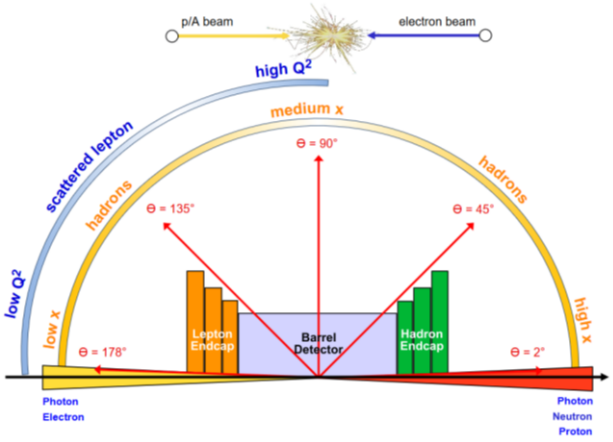
- ❑ EIC physics covers the entire region (backward, central, forward)
- ❑ Many EIC science processes rely on excellent and fully integrated forward detection scheme



	far-backward e detection	e final-focus quads	"Central detector", includes e endcap, central, and p/ion endcap detectors	Ion final-focus quads	far-forward h detection	forward dipole	far-forward h detection	forward dipole	far-forward h detection
physics examples	Low-Q^2 spectroscopy		Inclusive Structure Functions, TMDs, heavy flavors and jets, electrons for GPDs		Baryon decay π/K structure evaporated n		GPDs/DVCS, tagging, diffraction		lowest-t, diffraction
detector examples	GEMs Diamond detectors?		Vertex and Tracking detectors, particle identification detectors, calorimetry detectors, muon detectors, etc.		GEMs ZDCs e/γ calorim.		GEMs Roman pots e/γ calorim.		Roman pots GEMs?

The Interactive Detector Matrix

https://physdiv.jlab.org/DetectorMatrix/



- Supersedes the EIC Detector Handbook
- Collects physics requirements "real time", lists all technologies for a given region, and links to studies that established the numbers
- **Is the official EIC set of physics requirements and technology parameters**

View Matrix View Model View Help Login to Edit

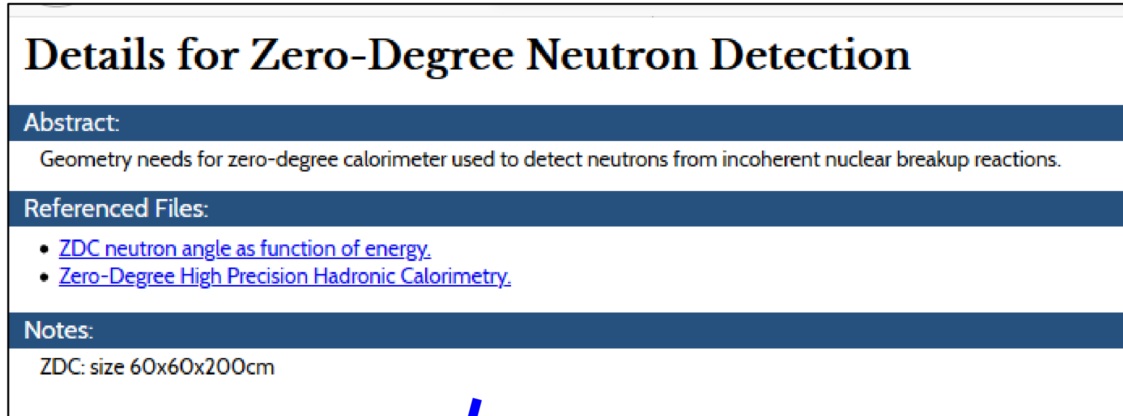
η	Nomenclature			Tracking			Electrons		π/K/p		HCAL	Muons
				Resolution	Allowed X/X_0	Si-Vertex	Resolution σ_E/E	PID	p-Range (GeV/c)	Separation	Resolution σ_E/E	
-6.9 to -5.8	↓ p/A	Auxiliary Detectors	low-Q2 tagger	σθ/θ < 1.5%; 10-6 < Q2 < 10-2 GeV2								
...												
-4.5 to -4.0			Instrumentation to separate charged particles from photons				$2\%/\sqrt{E}$					
-4.0 to -3.5												
-3.5 to -3.0		Central Detector	Backward Detector	$\sigma_p/p \sim 0.1\% \oplus 0.5\%$	~5% or less X	TBD		π suppression up to $1{:}10^4$	≤ 7 GeV/c	≥ 3 σ	~$50\%/\sqrt{E}$	
-3.0 to -2.5												
-2.5 to -2.0				σ_p/p $0.1\% \oplus 0.5\%$			$2\%/\sqrt{E}$					
-2.0 to -1.5				σ_p/p $0.05\% \oplus 0.5\%$			$7\%/\sqrt{E}$					
-1.5 to -1.0							$7\%/\sqrt{E}$					
-1.0 to -0.5			Barrel	$\sigma_p/p \sim 0.05\% \times p + 0.5\%$		$\sigma_{xyz} \sim 20\ \mu m$, $d_0(z) \sim d_0(r\Phi) \sim 20/p_T\,GeV\ \mu m + 5\ \mu m$	$(10\text{-}12)\%/\sqrt{E}$		≤ 5 GeV/c			TBD
-0.5 to 0.0												
0.0 to 0.5												
0.5 to 1.0												
1.0 to 1.5			Forward Detectors	$\sigma_p/p \sim 0.05\% \times p + 1.0\%$		TBD			≤ 8 GeV/c		~$50\%/\sqrt{E}$	
1.5 to 2.0												
2.0 to 2.5									≤ 20 GeV/c			
2.5 to 3.0				$\sigma_p/p \sim 0.1\% \times p + 2.0\%$								
3.0 to 3.5									≤ 45 GeV/c			
3.5 to 4.0	↑ e	Auxiliary Detectors	Instrumentation to separate charged particles from photons									
4.0 to 4.5												
...			Neutron Detection									
> 6.2			Proton Spectrometer	$\sigma_{intrinsic}(\lvert t \rvert)/\lvert t \rvert < 1\%$; Acceptance: $0.2 < p_T < 1.2$ GeV/c								

Thanks to: Walt Akers, Elke Aschenauer, Rolf Ent, Thomas Ullrich

DWG Interactive Map

https://physdiv.jlab.org/DetectorMatrix/

- ❑ Goal: work out requirements to carry out the EIC physics
- ❑ Goal: Integrate technologies to meet the requirements


Details for Zero-Degree Neutron Detection

Abstract:

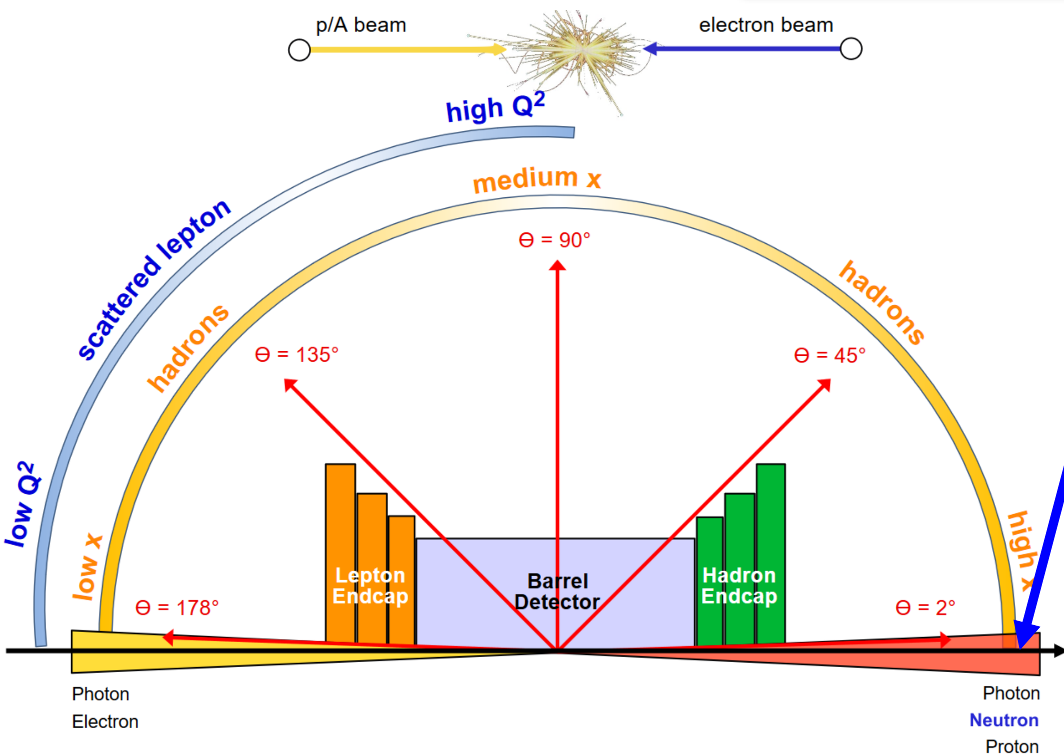
Geometry needs for zero-degree calorimeter used to detect neutrons from incoherent nuclear breakup reactions.

Referenced Files:

- ZDC neutron angle as function of energy.
- Zero-Degree High Precision Hadronic Calorimetry.

Notes:

ZDC: size 60x60x200cm



Example of zero-degree neutron detection

Interactive Map: to guide and document the efforts towards these goals

Thanks to: Walt Akers, Elke Aschenauer, Rolf Ent, Thomas Ullrich

DWG Interactive Map

https://physdiv.jlab.org/DetectorMatrix/

- Interactive table of detector requirements for each region of physics

Details for the Barrel Calorimeter HCAL

Abstract:

The resolution was determined in a study, which looked to the energy-resolution of jets using a the information of a hadron calorimeter in the unfolding.

Referenced Files:

- Jet study in Barrel HCAL

Notes:

Barrel HCAL: 75%/sqrt(E) + 15%

Example of Barrel Calorimeter HCAL

η	Nomenclature			Tracking			Electrons		π/K/p		HCAL	Muons
				Resolution	Allowed X/X_0	Si-Vertex	Resolution σ_E/E	PID	p-Range (GeV/c)	Separation	Resolution σ_E/E	
-6.9 to -5.8	↓ p/A	Auxiliary Detectors	low-Q2 tagger	δθ/θ < 1.5%; 10-6 < Q2 < 10-2 GeV2								
...												
-4.5 to -4.0			Instrumentation to separate charged particles from photons				2%/√E					
-4.0 to -3.5												
-3.5 to -3.0		Central Detector	Backward Detector	σ_p/p ~ 0.1%×p+2.0%	~5% or less	TBD		π suppression up to 1:10^4	≤ 7 GeV/c	≥ 3 σ	~50%/√E	
-3.0 to -2.5												
-2.5 to -2.0				σ_p/p ~0.05%×p+1.0%								
-2.0 to -1.5				7%/√E								
-1.5 to -1.0												
-1.0 to -0.5			Barrel	σ_p/p ~0.05%×p+0.5%		σ_{xyz} ~ 20 μm, $d_0(z)$ ~ $d_0(r\Phi)$ ~ 20/p_TGeV μm + 5 μm	(10-12)%/√E		≤5 GeV/c		TBD	TBD
-0.5 to 0.0												
0.0 to 0.5												
0.5 to 1.0												
1.0 to 1.5			Forward Detectors	σ_p/p ~ 0.05%×p+1.0%		TBD			≤ 8 GeV/c		~50%/√E	
1.5 to 2.0												
2.0 to 2.5									≤ 20 GeV/c			
2.5 to 3.0				σ_p/p ~ 0.1%×p+2.0%								
3.0 to 3.5									≤ 45 GeV/c			
3.5 to 4.0	↑e	Auxiliary Detectors	Instrumentation to separate charged particles from photons									
4.0 to 4.5												
...			Neutron Detection									
> 6.2			Proton Spectrometer	$\sigma_{intrinsic}(\lvert t\rvert)/\lvert t\rvert$ < 1%; Acceptance: 0.2 < p_t < 1.2 GeV/c								

Thanks to: Walt Akers, Elke Aschenauer, Rolf Ent, Thomas Ullrich

Yellow Report – Updates from the WGs

Tracking WG: status and strategy

Current status:

- working on the following main deliverables:
  - ✓ evaluate all-silicon vs hybrid (silicon & gaseous) trackers, both technology and performance sides
  - ✓ compare realistic alternatives (TPC, MPGD options) for gaseous detectors, both barrel and forward regions
- ongoing performance studies (mainly EicRoot-based simulations):
  - ✓ central region Si-vertex + TPC + Fast MPGD Layers
  - ✓ endcap region GEM (MPGD) trackers
  - ✓ all-silicon (barrel) tracker + forward/backward silicon disks
  - ✓ comparisons all-silicon vs BeAST (Si-vertex + TPC + MPGDs) concepts
- available results and interactions with other groups:
  - ✓ relative momentum and pointing resolutions, preliminary angular resolutions at PID positions
  - ✓ started interactions with PID and Integration WGs (this week also with Calorimetry)

Future plan:

- finalize technology survey and simulation studies within EicRoot
- increase effort on Fun4All and ESCalate simulations (close connection with SWG):
  - ✓ finalize current implementations of all-silicon tracker in Fun4All and G4E
  - ✓ implementing services and material for all tracker detector configurations in Fun4All and G4E
  - ✓ join simulation campains and project tracking performance to physics-oriented studies (connection with PWGs)
- keep following / increasing interactions with other WGs, including Complementarity and PWGs

Tracking WG: technology input for complementarity

Tracking Si central detector (vertex + barrel + discs)

Technology: for the vertex, barrel and inner disc detectors, the only identified technology that meets the requirements are MAPS. No currently existing MAPS sensor appears to fully meet all of the EIC requirements (current simulations are based on ALPIDE sensors with a smaller pixel size 20 x 20 um^2). In order to produce a new sensor design that meets the EIC requirements a consortium of EIC groups are joining an ongoing sensor development effort at CERN. There are contingency plans for modification of existing sensor designs to meet EIC requirements should this CERN effort be unsuccessful.

ITS3 silicon design parameters

Parameter	Wafer-scale sensor (this proposal)
Technology node	65 nm
Silicon thickness	20-40 μm
Pixel size	O(10 x 10 μm)
Chip dimensions	scalable up to 28 x 10 cm
Front-end pulse duration	~ 200 ns
Time resolution	< 100 ns (option: <10ns)
Max particle fluence	100 MHz/cm^2
Max particle readout rate	100 MHz/cm^2
Power Consumption	< 20 mW/cm^2 (pixel matrix)
Detection efficiency	> 99%
Fake hit rate	< 10^{-7} event/pixel
NIEL radiation tolerance	10^{14} 1 MeV n_{eq}/cm^2
TID radiation tolerance	10 MRad

There is general consensus that this is a promising path to pursue to deliver an EIC sensor in the given timeframe. Momentum and pointing resolution performance studies are in progress. EIC requirements seem satisfied.

	Stave X/X0
ITS3 like vertexing	~0.1%
ITS3 like barrel (up to 1.5m length)	0.55 %
ITS3 like disc (up to 60 cm diameter)	0.24%

Si + gaseous detector vs. all silicon

	Si + gaseous	All Si
Attributes for consideration	• dE/dx in gas for PID • Well understood technology - less R&D needed. • Costs less (likely) • Less material in tracking region • Worse single point resolution but more position samples	• Readout faster than TPC • Better momentum resolution than TPC at higher momentum (>~5GeV/c) • Can be made more compact • Less material in endcap regions • Fewer calibration/correction issues • Very high single point resolution

Tracking WG: technology input for complementarity

	TPC + Fast MPGD Layer	Cylindrical MPGD (Micromegas, µRWELL)	Drift Chambers / Straw Tubes	Planar MPGDs (GEM, Micromegas, µRWELL)	Small TGCs	MPGD-TRDs
Barrel region	Pros: - momentum res.; - additional dE/dx; - **cost** - **Low material in barrel**	Pros: - Space point & angular res. - Time resolution (< 10 ns) - **Low material in End cap** - **Cost & robustness**	Pros: - momentum res.; - additional dE/dx; - **cost** - **Low material in barrel**	Pros: - Alternative to cylindrical MPGDs arrangement in polygons - **Easier fabrication**	N/A	N/A Radiator size
	Cons: - **End cap material** - calibration space charge distortion	Cons: - Momentum res. - Fabrication challenges - **Material budget in barrel**	Cons: - **End cap material** - calibration - Stability issues	Cons: - Momentum res. - Detector space barrel - **Material budget in barrel**		
Hadron End Cap	N/A Only planar option		Pros: - momentum res.; - additional dE/dx; - **cost** - **Low material in barrel**	Pros: - Momentum & angular res. - Low material (<0.4%) - **Cost & robustness**	Pros: - Momentum & angular res. - **Cost & robustness**	Pros: - Additional tracking - Angular res. for RICH - **Additional e/π PID**
			Cons: - **Material budget** - calibration - Stability issues	Cons: - **?**	Cons: - **Material budget**	Cons: - Radiator size
Electron End Cap	N/A Only planar option		N/A	Pros: - Momentum & angular res. - Low material (<0.4%) - **Cost & robustness**	N/A Mainly because of material budget	Pros: - Additional tracking - **Complement main e PID in electron end cap**
				Cons: - **?**		Cons: - Radiator size?

Particle ID WG - Where we are: Summary Table

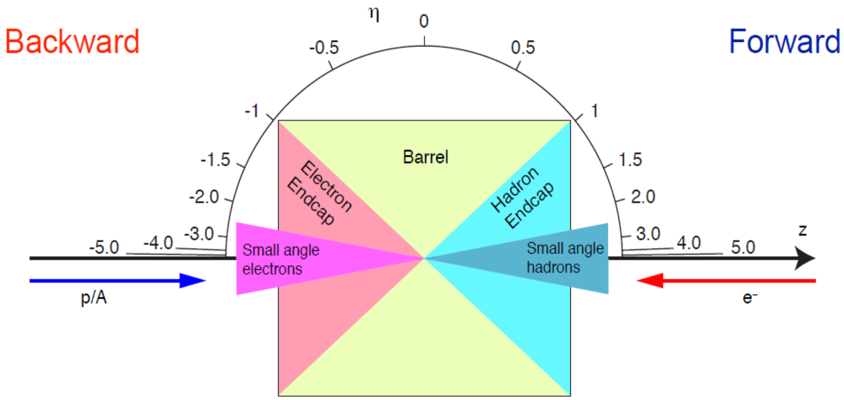
	P Range	Contr. ϑ_c	Para m.	Pro/Co n	Ext. Const	MONTECARLO Sim.
psec TOF LGAD TOF	Up to 10 Depending on the σ_T and L	NO	~YES	YES	~ YES	NO
dual RICH (aerogel, gas)	2-60 @ 1.6 m	YES • Chroma • Emission • Pixel • Field • Tracking	YES	YES	YES • Simulated constant w/ momentum	YES • GEMC/Geant4 • AI-driven Optimization
GEM RICH (Gas Electron Multipliers)	20-50 @1m	• Chroma • (Emission) • Pixel • Tracking	YES	YES	YES	YES (Simplified)
modular RICH (mRICH)	2-10 @ 3 cm	YES • Chroma • Emission • Pixel • Tracking	~YES	YES	YES (tracking)	~YES • GEMC/Geant4 work in progress
DIRC	2-6 @ 1.7 cm	YES • Tracking • Mult. Scat • Chrom, Emis, pix	YES	YES	YES	YES • GEMC/Geant4 without B field

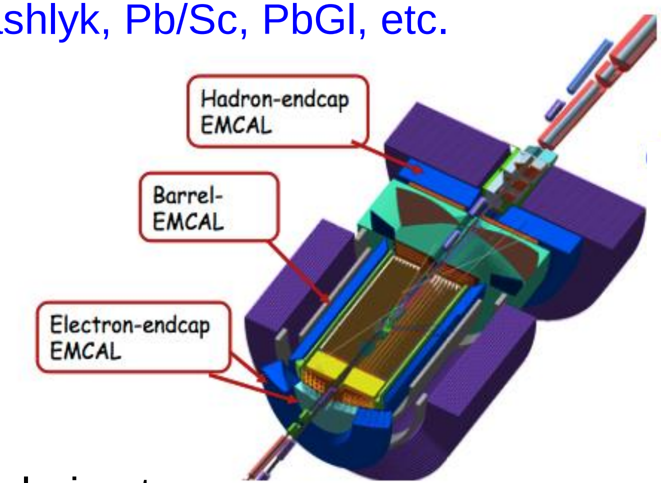
Important notes on the table

- Almost all «yes» but still many open questions:
  - Simulation are still preliminary except for a couple of detectors
  - For sensors and electronics in the detector acceptance radiation hardness can be an issue not yet evaluated
  - R&D on photon sensors is still on going (magnetic field tolerance? No currently proven sensor solution for 3T magnetic field)
  - No discussion on the material budget
  - Assumption on the available space in some cases is not realistic
  - Sensor time resolution for psTOF is very challenging (should be proven)

EIC Calorimetry overview

Several options including crystals, glass, W/SciFi, Shashlyk, Pb/Sc, PbGl, etc.





Detector Matrix for the calorimeters

η	Nomenclature	EmCal						HCal			
		Energy resolution %	Spatial resolution mm	Granularity cm^2	Min photon energy MeV	PID e/π πsuppression	Technology examples*	Energy resolution %	Spatial resolution mm	Granularity cm^2	Technology solution
-3.5 : -2	backward	2/√E ⊕ 1	3/√E ⊕ 1	2x2	50	100	$PbWO_4$	50/√E⊕10	50/√E ⊕ 30	10x10	Fe/Sc
-2 : -1	backward	7/√E ⊕ 1.5	3(6)/√E ⊕ 1	2.5x2.5 (4x4)	100	100	DSB:Ce glass; Shashlik; Lead glass	50/√E⊕10	50/√E ⊕ 30	10x10	Fe/Sc
-1 : 1	barrel	(10-12) /√E ⊕ 2	3/√E ⊕ 1	2.5x2.5	100	100	W/ScFi	100/√E⊕ 10	50/√E ⊕ 30	10x10	Fe/Sc
1 : 3.5	forward	(10-12) /√E ⊕ 2	3/√E ⊕ 1	2.5x2.5 (4x4)	100	100	W/ScFi Shashlyk, glass	50/√E⊕ 10	50/√E ⊕ 30	10x10	Fe/Sc

***Technology selection depends on the space available**
Several other technologies are under consideration

e/π: pion suppression depends on the energy, and the energy and momentum resolutions

Material in front will affect the resolution

Status of Far-Forward Group

- **Tasks and deliverables**
  - Understand detailed geometric acceptance with baseline IR design.
  - Propose baseline detector concepts for FF hadron & photon detection and study resolutions.
  - Iterate on the above points with possible, achievable improvements (e.g. ZDC energy resolution, pixel sizes, etc.)
  - Use studies to help inform second IR design to potentially cover gaps in the baseline IR.
    - The complementarity discussion has begun along these lines.
- **Resources**
  - People from both JLAB, BNL, and universities and other labs actively working on simulations.
  - People from JLAB, BNL, LANL, universities, etc. actively researching technology to meet requirements.
  - Computing resources in use at both BNL (RACF, EicRoot, Fun4All, etc.) and at JLAB (ESCalate, g4e, etc.).
- **Plan for interaction with PWG and SWG**
  - In progress – we have gotten MC input from both the exclusive and diffractive working groups that are being processed (or have already been processed) through the full IR simulation.

Electronics and DAQ

Sub WG strategy

Goal of the WG: *Bring peoples from different laboratories together to imagine realistic scenarios for the readout electronics and DAQ system of the future EIC experiments*

Strong links to build with:

– detector WG → What detector we will have to read ? Expected signal flux ? Detector online calibration and monitoring ?

– physics and software WG → What physics events to read ? What background to reject ? Which rate for each ? What data treatment to do online ?

Gather state of the art on hardware electronics (in particular readout chips) and envisioned developments, to study their adaptation to the different detector readout requirements

Think about the different possible DAQ and readout structures, summarizing their adaptation to the EIC experimental context

Present status

Relations with others WG

– contacts taken with detector groups but too early to get extensive answers about detector characteristics

– interesting discussions with the software WG

Hardware electronics: some information gathered on 1-2 pages summary for each chip, need to amplify contacts with hardware developers

DAQ structure: 3 dedicated WG meeting in April and May, several readout structures presented, discussion foreseen during the Pavia workshop in order to conclude on this topic

Polarimetry and Ancillary Detectors

- Requirements for each system fairly well defined
  - Polarimeters: rapid, bunch-by-bunch measurements, assuming ~1% (or better) systematic uncertainty required
  - Luminosity monitor: again assuming ~1% systematic uncertainty, rapid measurements
- Development work for each system at different levels of maturity
  - Extensive knowledge of hadron polarimeters exists – working on detailed Monte Carlo to make projections for EIC
  - Compton polarimeter GEANT4 simulation under development – can already get rough idea of detector requirements from simple simulations without detailed detector response
  - GEANT4 simulation for lumi monitor exists. Work now focuses on refining details of setup
- Detector requirements for each system roughly known – some details need to be investigated
  - What degree of segmentation for Compton photon/electron detectors? Photon detector energy resolution?
  - Extra detectors for hadron polarimetry?
  - Once detector requirements better understood, can make decision on technology (e.g., HVMAPS pixelated detector vs. strip detector, etc.)

Central / Integration / Magnet Working Group

- **Task: become a central place where the detector concepts ‘materialize’**
- **Membership: no** *integration experts***, everybody is welcome**
- **Work in close contact with the other subgroups, DWGs and Complementarity WG in particular**

- **Solenoid magnet design team activities:**
  - Solenoid requirement document to be released soon
  - Designer meetings on April 8 and May 15 (now under the OPC structure)

- **Joint WG meetings organization**
  - May 13: PID and Tracking WGs

- **Near future: topical discussions**
  - Crossing angle, IP shift, beam pipe design, high $|\eta|$ acceptance, …
  - t_0 counters, finite bunch length and all other timing issues
  - Space allocations, projectivity, single- or multi-functional detectors, …

Complementary Detector

Goal:

Collect crisp and clear arguments why two detectors will enhance the physics output of the EIC complementarity includes the IR design, but keeping consistency with accelerator design in mind

Approach:

Started to meet with the conveners of the different PWGs and discuss a set of questions documented at https://wiki.bnl.gov/eicug/index.php/Yellow_Report_Complementarity

Open MIC session
Friday, 22nd of May
at 8:45 am EDT

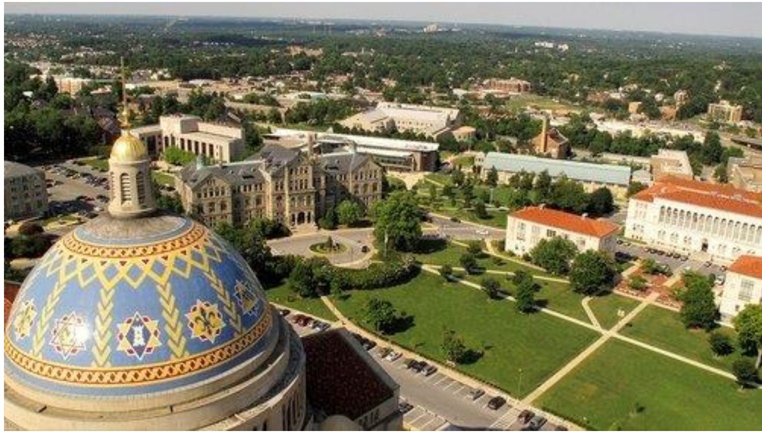
submit slides to
elke@bnl.gov & paul.newman@cern.ch
by Thursday CoB

Questions to address :

- ❑ Have you / your WG group identified requirements which conflict with the current baseline detector and IR design
- ❑ Do you have suggestion how to most effectively reach the goal

→ not more than 3 slides

Looking ahead to EIC YR Workshop #3



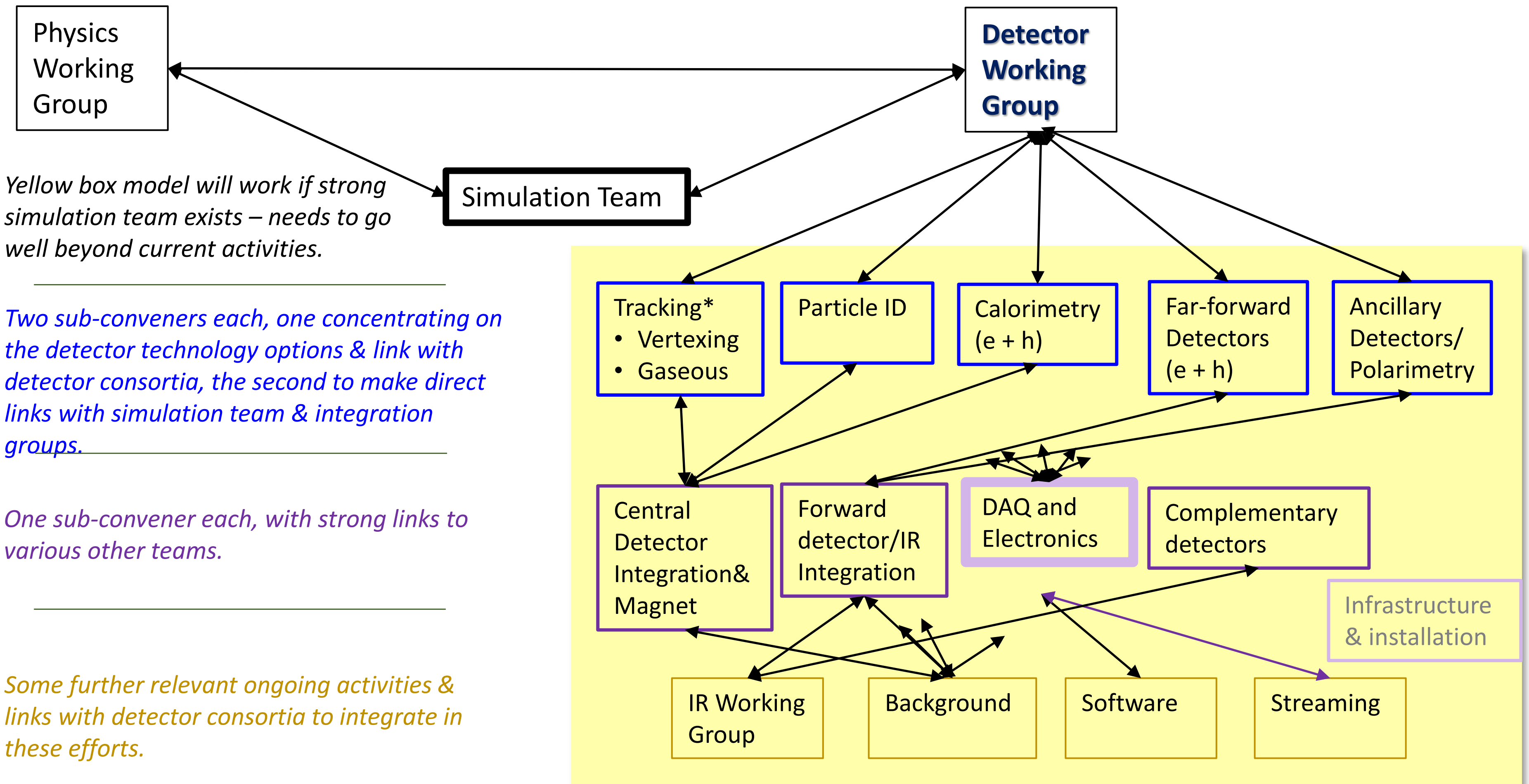
17 – 19 September at CUA/Washington DC
(or remote?)

Overall goal: "*present mature studies of detector requirements from physics processes, balance detector concepts versus impact on physics measurements. Discuss possible systematics reduction among complementary detector choices. Complete final "to-do" list for YR(s)"*

- Expect that the common theme will shift to discussions of global issues that impact all (or a large number of) Physics and Detector Working Groups rather than individual ones

- Possibly a venue to hear global view on detectors activities?

Detector WG - Organogram



*One additional sub-convener (to cover each of these distinct and evolving detector technologies)