

The Interactive Detector Matrix is the (only) official set of parameters for EIC

η	Nomenclature		Tracking			Electrons		$\pi/K/p$		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	\downarrow p/A	Auxiliary Detectors	low-Q2 tagger	$\sigma\theta/\theta < 1.5\%$ 10-6 < Q2 < 10-2 GeV2								
...												
-4.5 to -4.0			Instrumentation to separate charged particles from photons									
-4.0 to -3.5												
-3.5 to -3.0	Central Detector	Backward Detector	$\sigma_{p/p} \sim 0.1\% \oplus 0.5\%$	$\sim 5\%$ or less X	TBD	$2\%/\sqrt{E}$	IT suppression up to $1 \cdot 10^{-4}$	≤ 7 GeV/c	$\geq 3 \sigma$	$\sim 50\%/\sqrt{E}$		
-3.0 to -2.5			$\sigma_{p/p} 0.1\% \oplus 0.5\%$			$2\%/\sqrt{E}$						
-2.5 to -2.0			$\sigma_{p/p} 0.05\% \oplus 0.5\%$			$7\%/\sqrt{E}$						
-2.0 to -1.5						$7\%/\sqrt{E}$						
-1.5 to -1.0		Barrel	$\sigma_{p/p} \sim 0.05\% \oplus 0.5\%$		$\sigma_{xyz} \sim 20 \mu\text{m}$ $d_0(z)$ $-d_0(r\phi) \sim 20/p_T \text{GeV} \mu\text{m} + 5 \mu\text{m}$	(10-12)%/ \sqrt{E}		≤ 5 GeV/c		$\geq 3 \sigma$	TBD	
-1.0 to -0.5												
-0.5 to 0.0												
0.0 to 0.5												
0.5 to 1.0		Forward Detectors	$\sigma_{p/p} \sim 0.05\% \oplus 1.0\%$		TBD	(10-12)%/ \sqrt{E}		≤ 8 GeV/c		$\sim 50\%/\sqrt{E}$		
1.0 to 1.5												
1.5 to 2.0												
2.0 to 2.5												
2.5 to 3.0			$\sigma_{p/p} \sim 0.1\% \oplus 2.0\%$									
3.0 to 3.5												
3.5 to 4.0	\uparrow e	Auxiliary Detectors	Instrumentation to separate charged particles from photons									
4.0 to 4.5												
...			Neutron Detection									
> 6.2			Proton Spectrometer		$\phi_{\text{intrinsic}}(t)/\phi_{\text{t}} \leq 1\%$ Acceptance: $0.2 < p_t < 1.2$ GeV/c							

The interactive Detector Matrix is an evolving entity – needs input from YOU!

- We're working towards the 3rd YR workshop (CUA, Sep 17-19): "mature studies of detector requirements"
- To do so DWG needs to freeze detector matrix **August 31!**
- We have a meeting with PWG next Wednesday to discuss current input
- **Please communicate to us by e-mail or in meeting update**
 - Estimate of what you will have by Aug 31
 - Any unreported detector requirements already obtained -> we need to document these on the [wiki](#)!
 - "handbook detector value x works fine for physics object y in process z" also counts as a requirement and is **valuable information!**
 - See yesterday's e-mail
 - Send us your kinematic plots too!
- **Don't worry** about work done after August not having an impact. It can still be documented in the YR (PWG) and impact detector requirements
 - YR is snapshot in time
 - We are unfortunately on a very tight schedule and with limited resources, with current events not to our advantage

- After CUA workshop, focus on YR “endgame” → document writing
- How to structure/organize this? **Our** suggestions (input/discussion welcome!):
 - Overleaf/LaTeX document
 - Conveners will provide skeleton outline/structure and some guidelines regarding length
 - Subsections with studies presented/documented in our WG
 - Put your name down on the overleaf if you will contribute
 - Coordinate subsection writing between those persons
 - Use inspire bibtex format for references
 - We discuss overlaps with exclusive WG etc.
 - This can be the basis for a first draft which can then be edited and iterated