



University
of Glasgow



2026 EICUG Early Career Workshop Summary

2026 Join ePIC/EICUG Collaboration Meeting
Sir Charles Wilson Building

Gary Penman*
University of Glasgow
14th July 2026

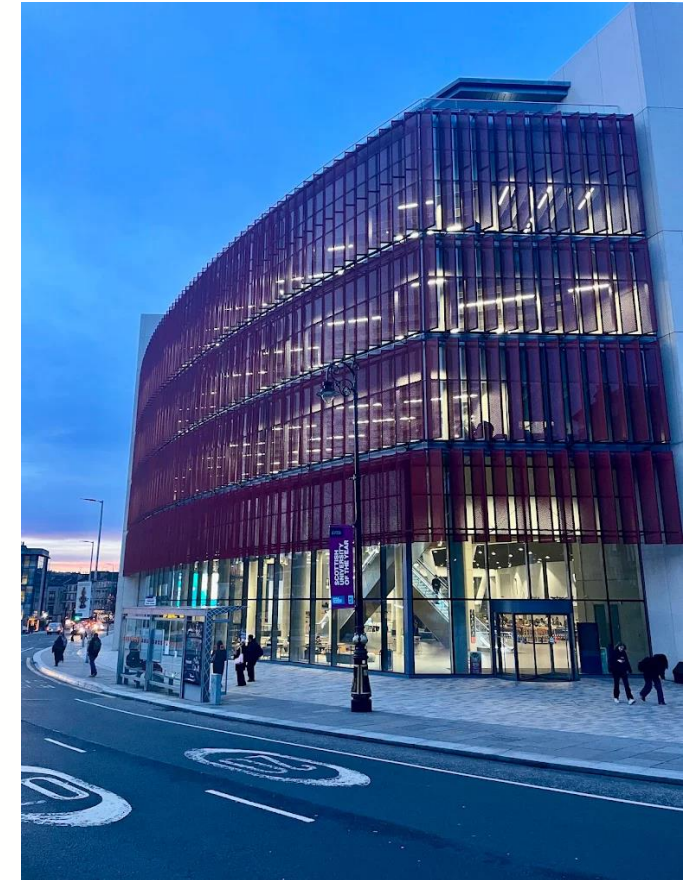
*On behalf of Akshaya, Bill, Derek, Doug, Jennifer & Yevheniia
And for the EIC Users Group

**WORLD
CHANGING
GLASGOW**

**A WORLD
TOP 100
UNIVERSITY**

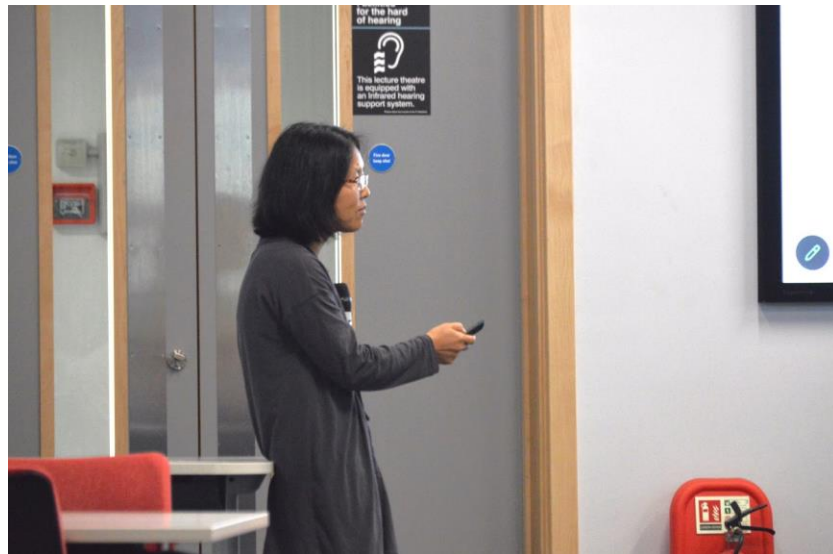
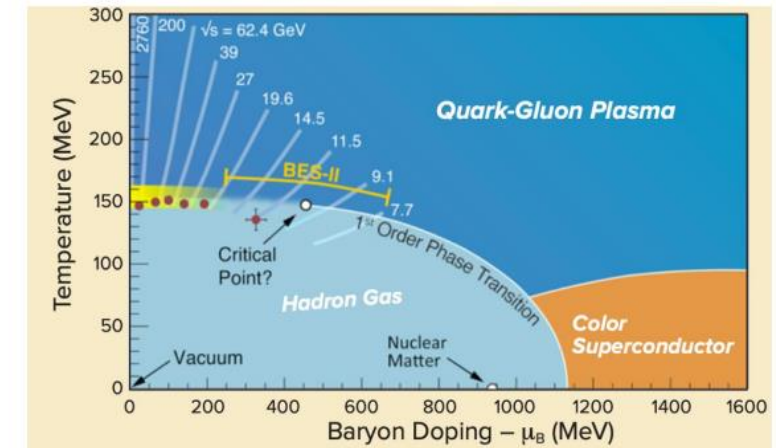
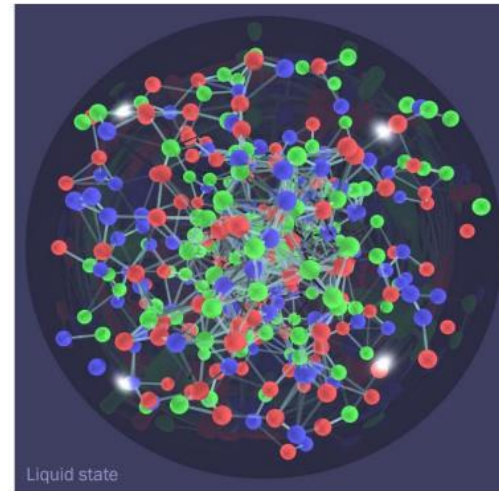
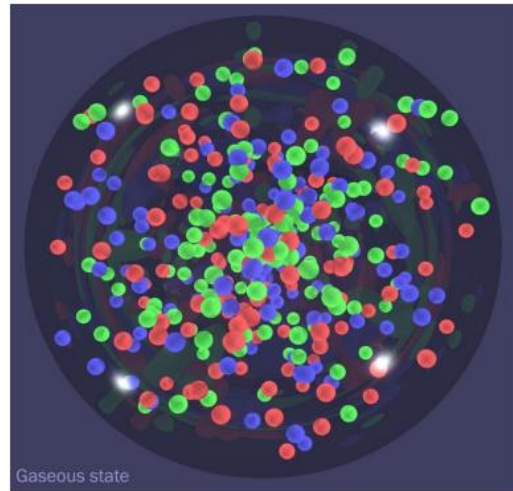
Overview of Workshop Schedule

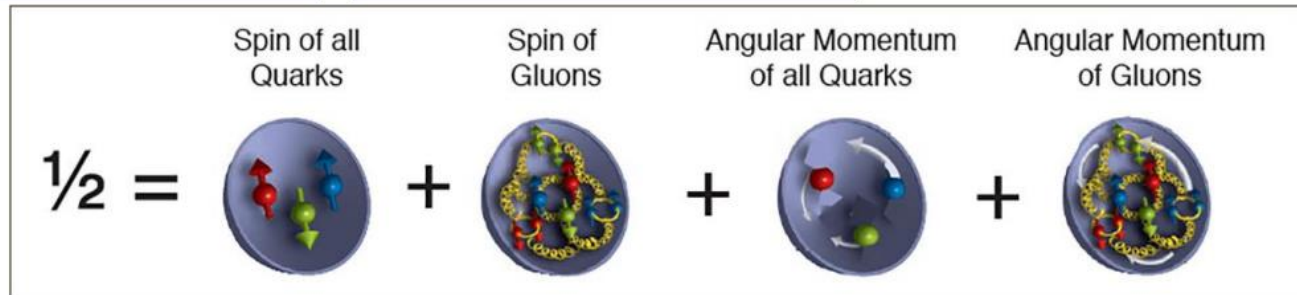
- Invited talks by Dr Lijuan Ruan and Dr Tarini Konchady
- 15 ECR talks over theory, hardware and phenomenology with ePIC and EIC
- 5 Poster contributions for our competition with flash talks
- Group Photo, Best Talk & Poster voting
- Software tutorial
- Town Hall Discussion
- Workshop dinner: Mother India Restaurant





The science of RHIC



$$\frac{1}{2} = \text{Spin of all Quarks} + \text{Spin of Gluons} + \text{Angular Momentum of all Quarks} + \text{Angular Momentum of Gluons}$$


The diagram illustrates the decomposition of the total angular momentum of a nucleon (1/2) into four components: Spin of all Quarks, Spin of Gluons, Angular Momentum of all Quarks, and Angular Momentum of Gluons. Each component is represented by a circular diagram showing the internal structure of the nucleon.

To probe the inner workings of the Quark-Gluon Plasma

To map the phase diagram of QCD

Where does science policy generally happen in the government itself?

Executive:

- Office of Science and Technology Policy (OSTP)
- Agencies

Congress:

- Senate Committee on Commerce, Science, & Transportation
- House Committee on Science, Space, and Technology
- Member offices



John Culberson TX-7 (R), 2001-19



Europa Clipper

National Academies Activities

- **Consensus & advisory activities**
- **Convening activities**
- Fellowships, grants, and awards
- Lectures and educational and outreach activities





G. Penman. "Overview of the ePIC Low-Q2 Tagger"

Requirements - Rates

We expect a high bremsstrahlung background (10-20 brem tracks per bunch cross @ peak luminosity) with a non-uniform distribution.

Maximum Rates

- Pixal (P1) 70 kHz
- 2 Column (C1) 8 MHz
- Tpix4 (T1) 600 MHz, 38 Gb/s
- Board (B1) 1500 MHz, 96 Gb/s
- Layer (L1) 2500 MHz, 160 Gb/s

Total Integrated Rates

- Tagger 1 2 GHz, 140 Gb/s
- Tagger 2 7 GHz, 480 Gb/s
- Total **9 GHz, 600 Gb/s**

Data Buffered & Filtered (Hadron in main Det)

- Trigger rate 500 kHz, 99.4% rejection (brem only)
- Data rate (signal) 4 Gb/s
- Data Rate (incl BG and rand) **<20 Gb/s to tape**

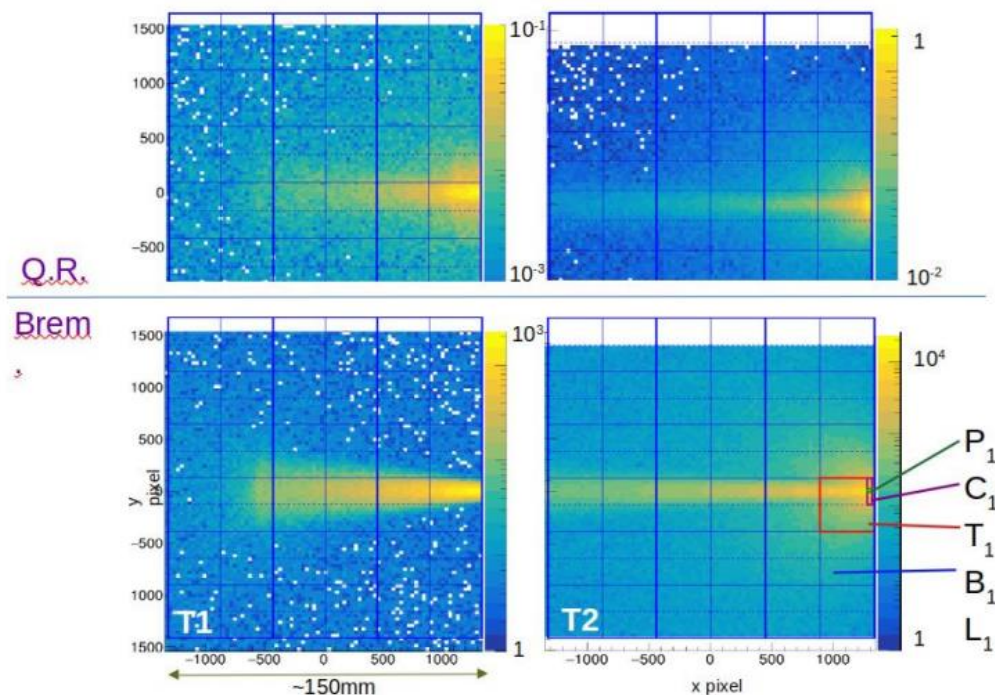
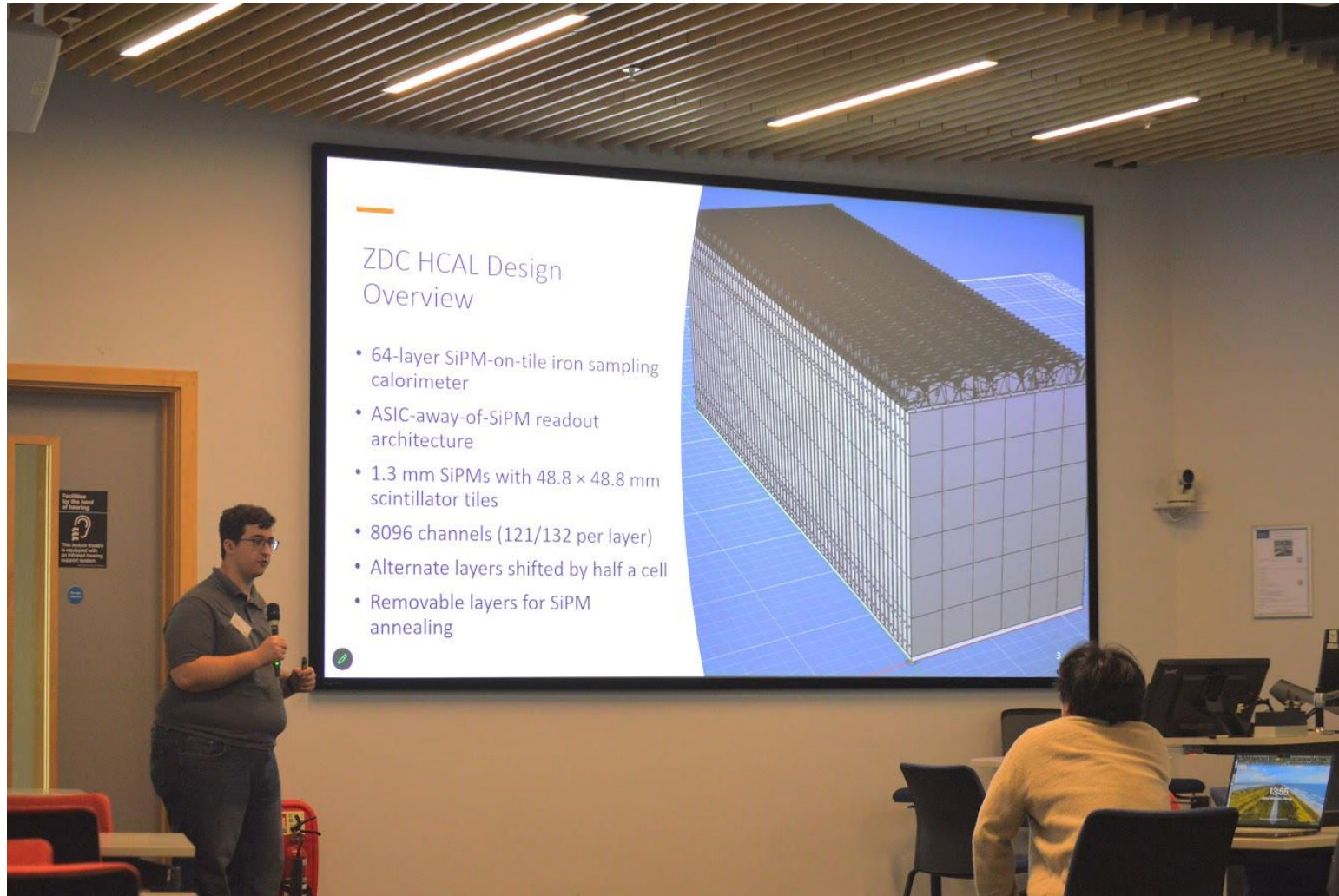


Figure 9: Low- Q^2 tagger rates kHz / pixel. (18×275 GeV @ $10^{34} \text{ cm}^{-2} \text{ s}^{-1}$).

Work is ongoing to produce physically realistic brem background mixed physics analysis at the current Early Science luminosity and energy configurations (9GeV electrons @ $\sim 1 \text{ fb}^{-1}$ Luminosity)

G. Penman. "Overview of the ePIC Low-Q2 Tagger"



S. Preins. "Beam Test of a SiPM-on-Tile ZDC Prototype with 5.3 GeV Positrons at Jefferson Laboratory"

Beam Test Goals

- Measure energy response
- Study shower development
- Measure position resolution
- Compare with GEANT4 simulation
- Guide the final ZDC design



[Submitted on 15 Mar 2026]

Beam Test of a SiPM-on-Tile ZDC Prototype with 5.3 GeV Positrons at Jefferson Laboratory

Sean Preins, Weibin Zhang, Ryan Tsiao, Mia Macias, Brice Saunders, Love Preet, Miguel Arratia

S. Preins. "Beam Test of a SiPM-on-Tile ZDC Prototype with 5.3 GeV Positrons at Jefferson Laboratory"



J. Demjancukova "Preamplifier circuit for Direct Photon Detector for luminosity measurement"

SiPM time characteristics at 50 MHz

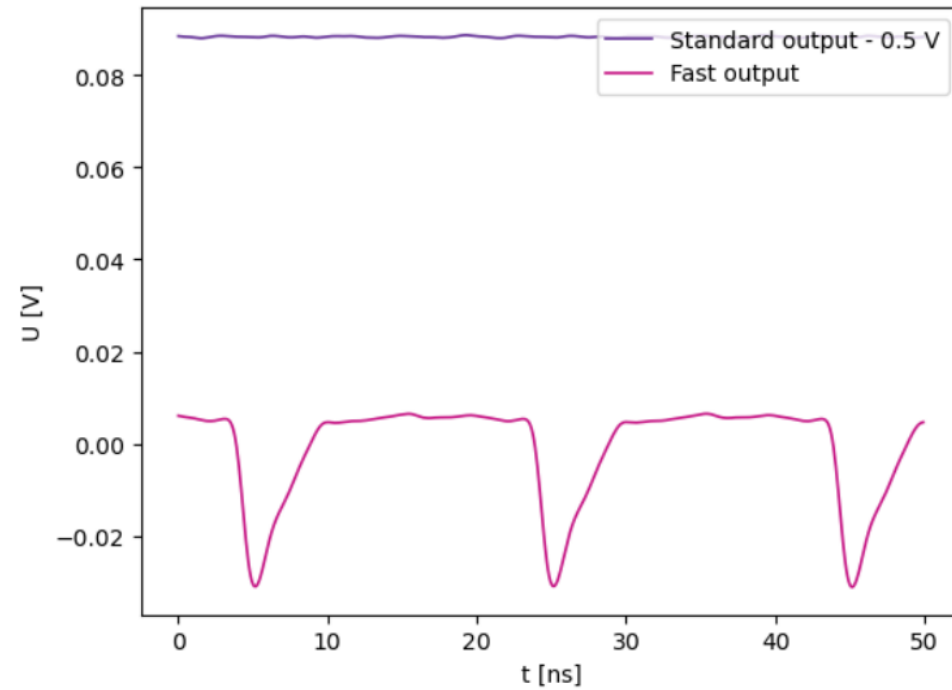
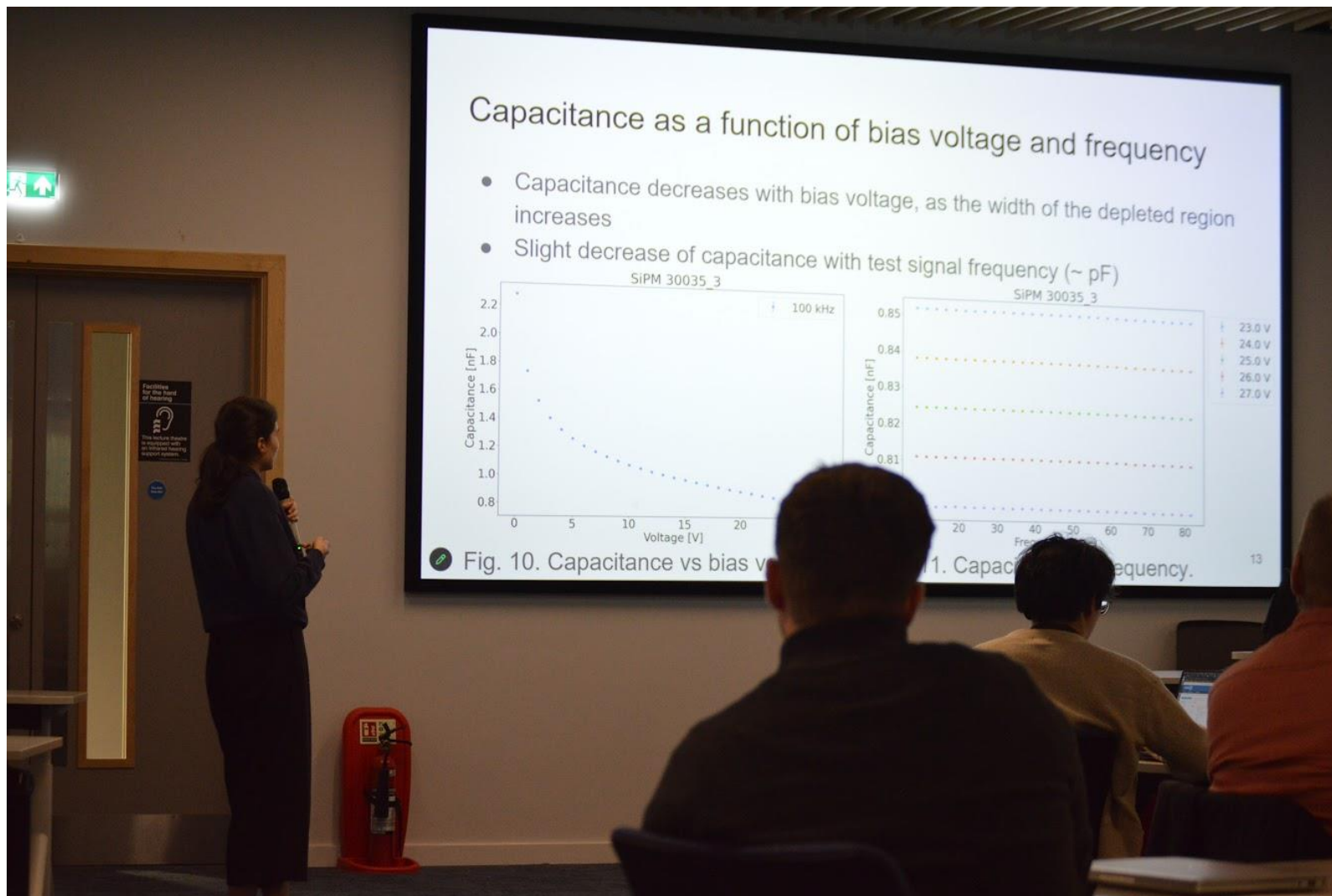


Figure: Output voltage at the standard and fast output of the onsemi C-Series 30035 SiPM with the amplifier circuit for the laser repetition frequency of 50 MHz.



L. Radmacherova "Electrical characteristic for SiPM for direct method for luminosity measurement"

Resistance and leakage current as functions of bias voltage

- Breakdown voltage determined from resistance and leakage current

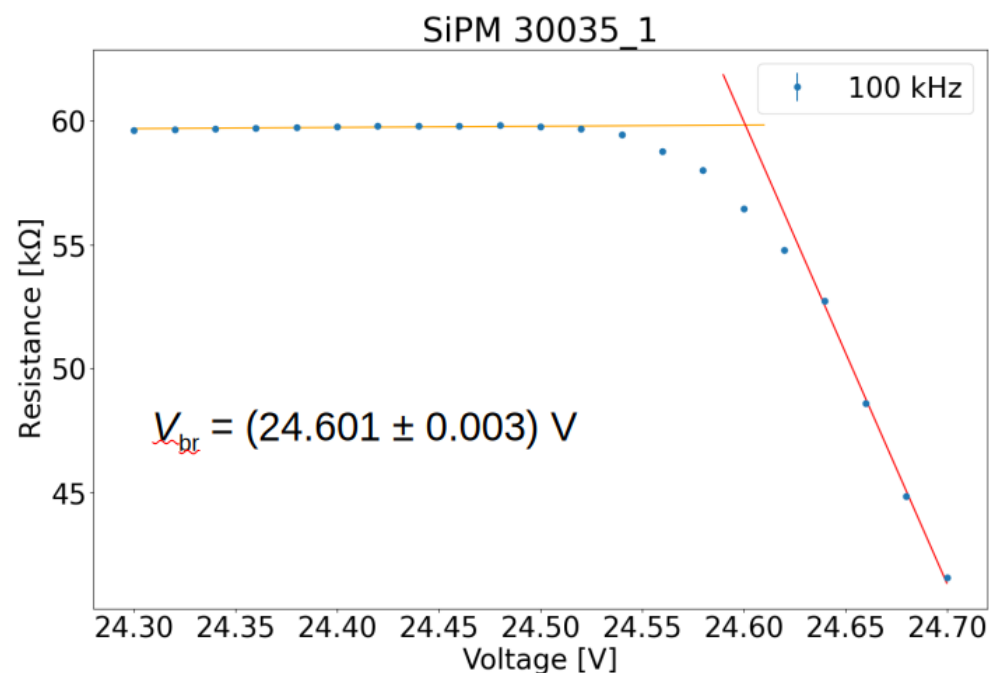


Fig. 8. Resistance vs bias voltage.

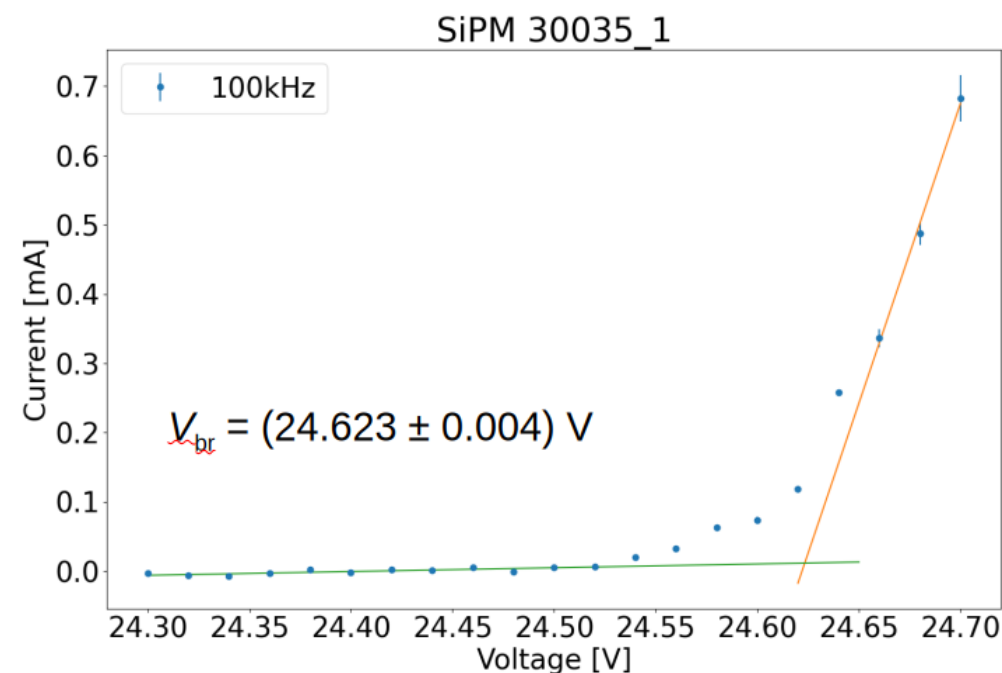


Fig. 9. Leakage current vs bias voltage. 11

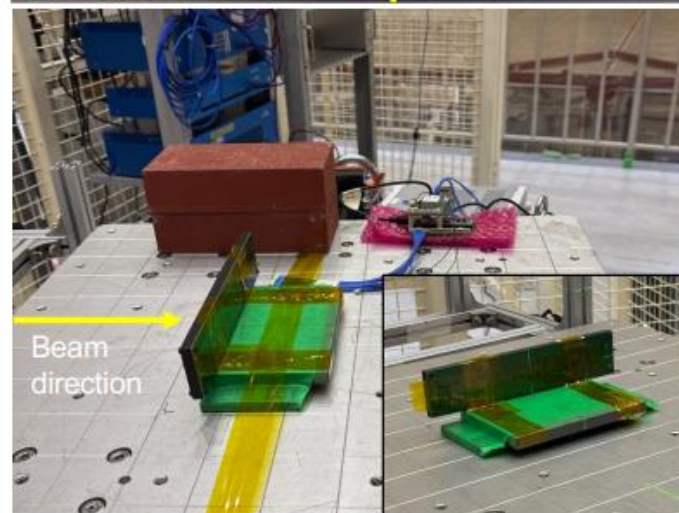
L. Radmacherova "Electrical characteristic for SiPM for direct method for luminosity measurement"

9-chip Module: Beam Test Result at KEK 2026

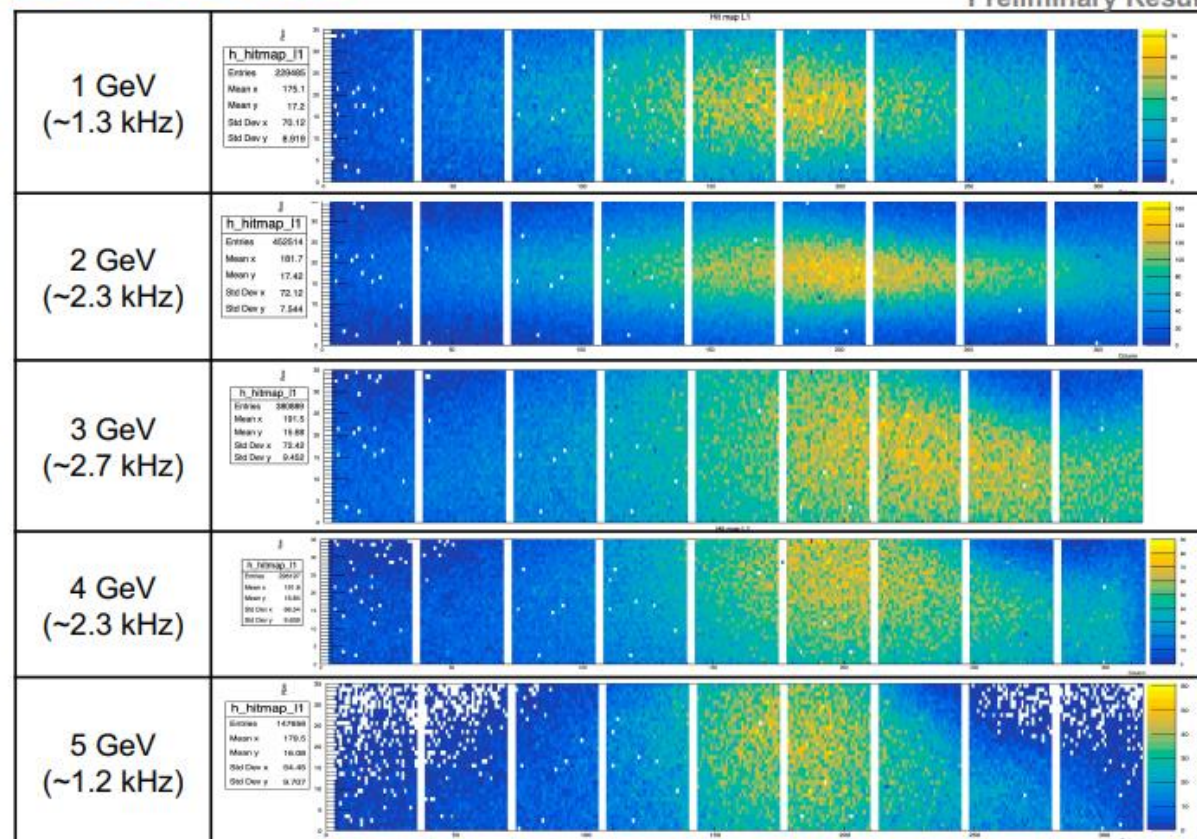
Operational verification under beam conditions

J. Park, B. Kim, J. Bok


Preliminary Result



- Electron beam energies 1–5 GeV
- Stable data-taking up to a **2.7 kHz beam rate**



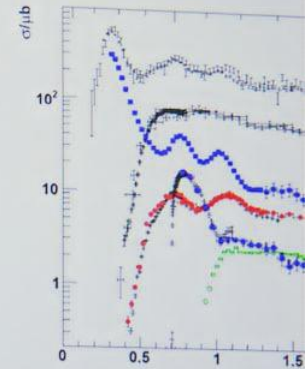
→ The first beam test of the 9-chip prototype module showed stable operation up to 2.7 kHz beam rate.

B. Kim "Recent Developments of the AstroPix Imaging Layers for the ePIC Barrel Imaging Calorimeter"

Hadron spectroscopy has two main goals:

- Precision measurements of the properties of observed states
- Searches for unseen, (un)predicted or unconventional states

Finding some states can be difficult in a "bump hunt"; many are wide and overlap



R. Beck and U. Thoma

EIC UG ECR, University of Glasgow

S. Fegan "Kaons, Kaons, I Like Kaons"



Preamble
□□□

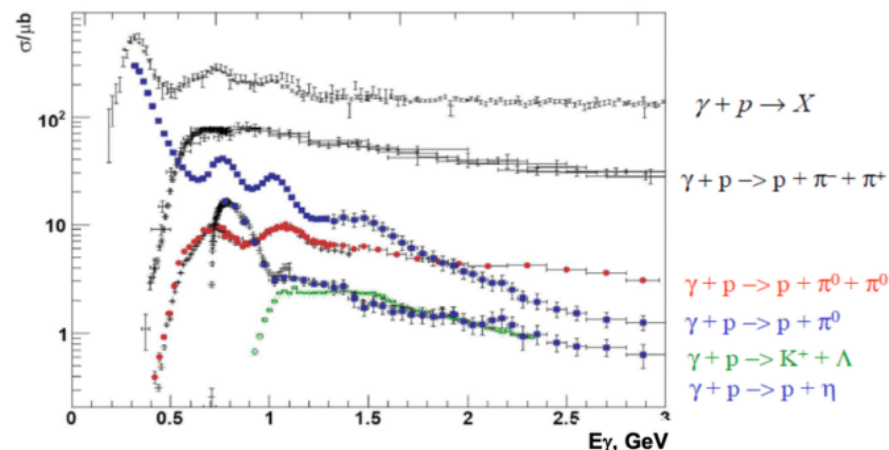
Introduction
□□□□□□□

CLAS Photoproduction
□□□□□□□□

GlueX Photoproduction
□□□□□□□□

KLF
□□□□□□□□

A World of Polarisation (Observables)



R. Beck and U. Thoma, EPJ Web Conf 134, 04003 (2017)

- Even high quality, high statistics data is insufficient to resolve the full resonance spectrum purely from cross-section measurements
- Use alternative means; coupling strength to a reaction channel, manifestation in experimental observables, etc. to aid searches

- Polarisation of the reaction particles can be exploited to probe resonances in more detail by measuring *Polarisation Observables*

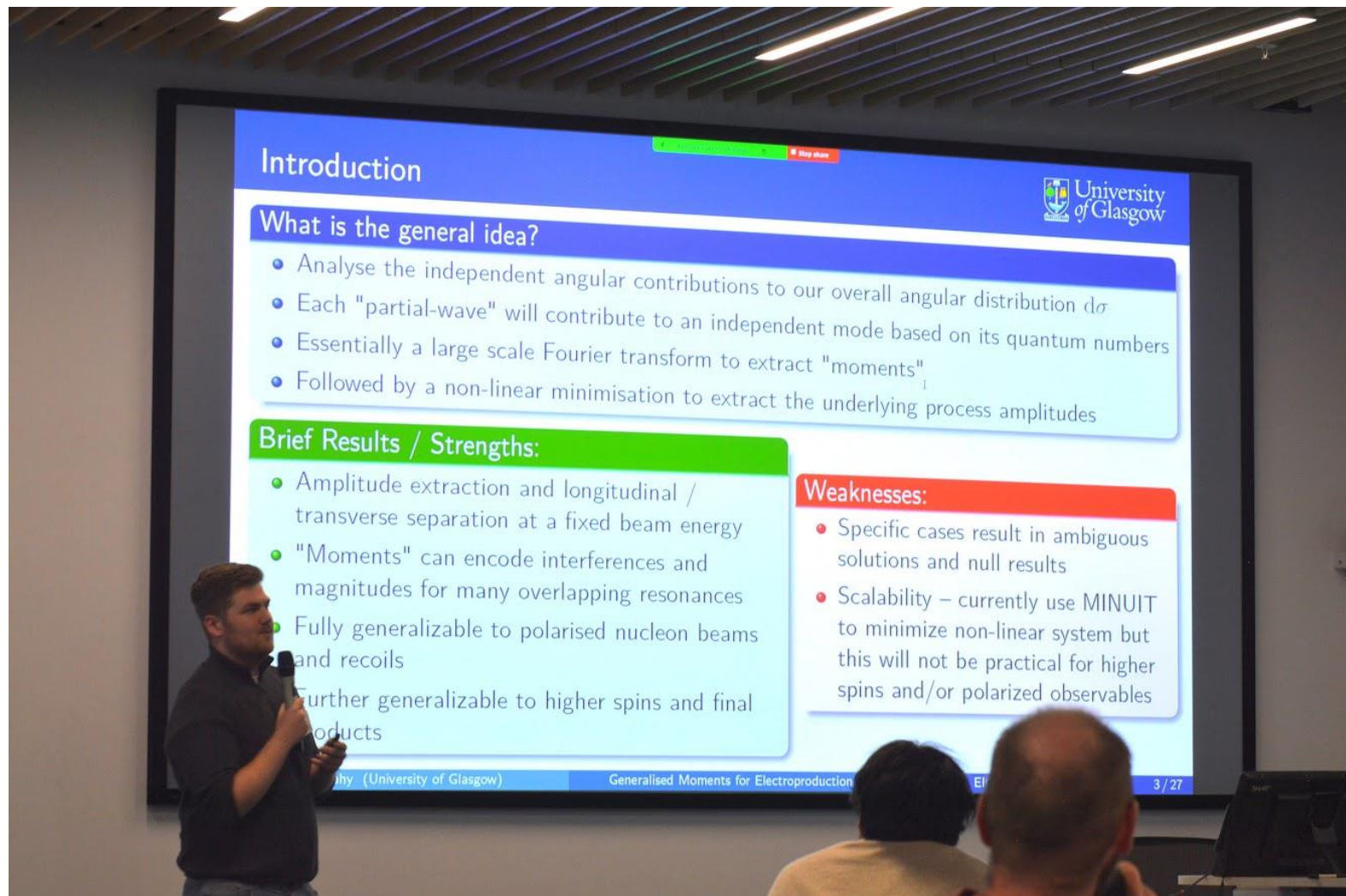
S. Fegan

EIC UG ECR, University of Glasgow

July 11th, 2026

13/39

S. Fegan "Kaons, Kaons, I Like Kaons"

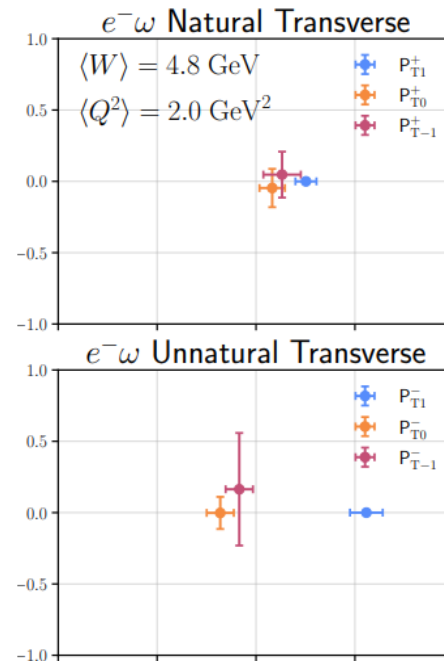


D. Leahy "A General Partial Wave Amplitude Formalism for Meson Electroproduction at the EIC"

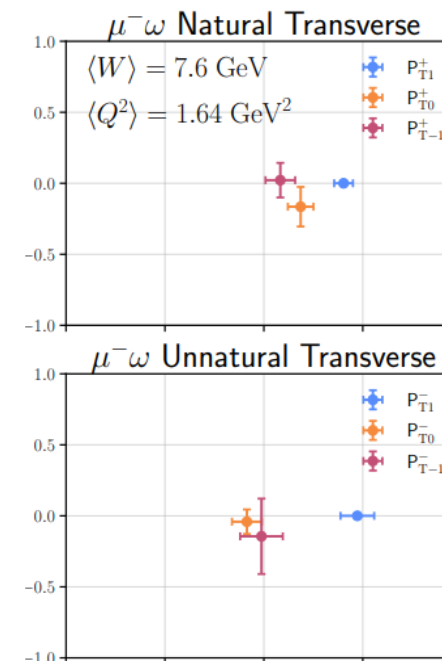
Real-World Data: ω Production (Transverse Sectors)



On ω data the minimizer does not work as well...

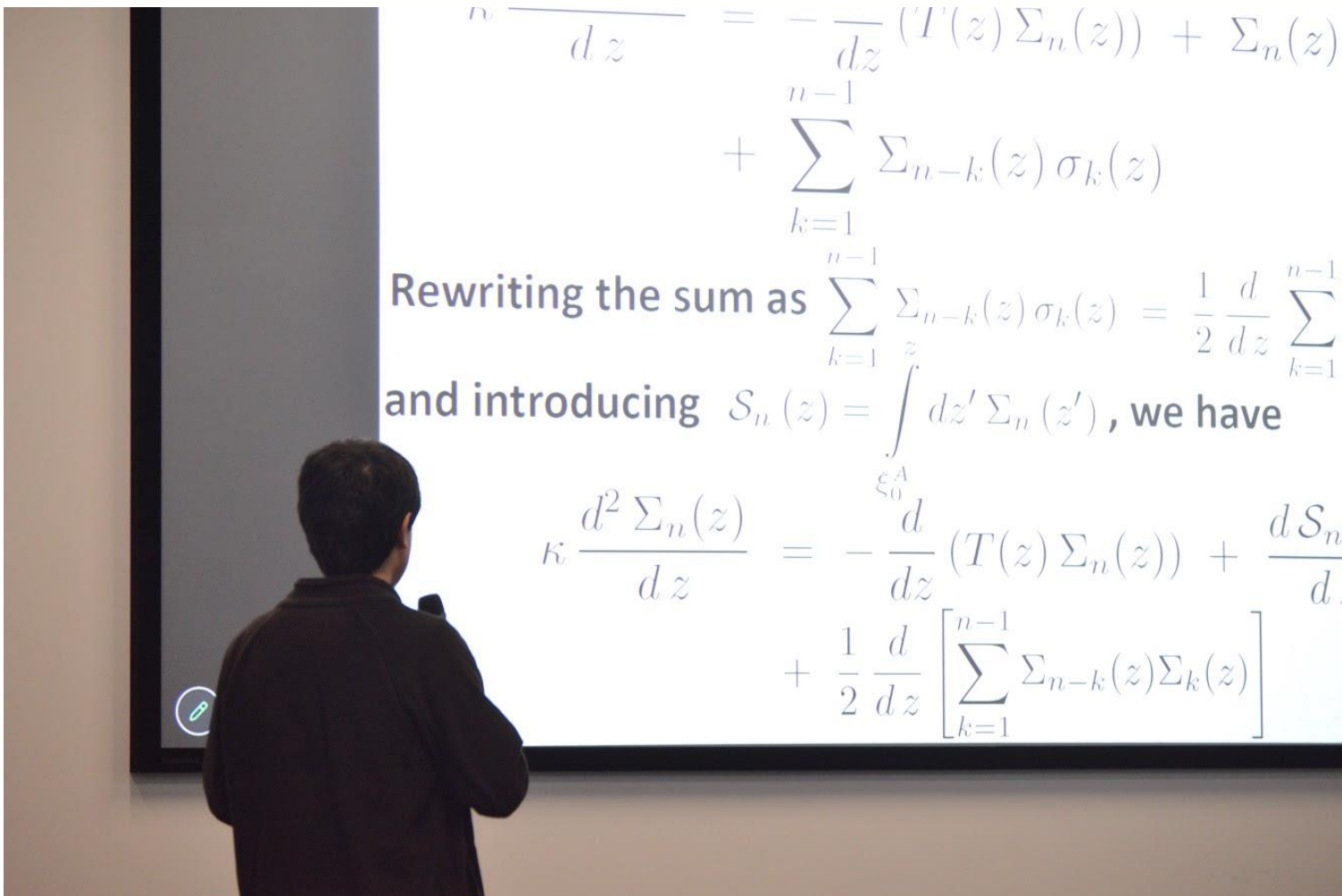


Electron Production: Extracted $e^- \omega$ transverse amplitudes.



Muon Production: Extracted $\mu^- \omega$ transverse amplitudes.

Observation: Minimizer solution is less certain than ρ^0 , but can see a distinctly large Unnatural Transverse $m = 1$ corresponding to expected pion exchange.



$$\kappa \frac{d}{dz} \Sigma_n(z) = - \frac{d}{dz} (T(z) \Sigma_n(z)) + \Sigma_n(z) + \sum_{k=1}^{n-1} \Sigma_{n-k}(z) \sigma_k(z)$$

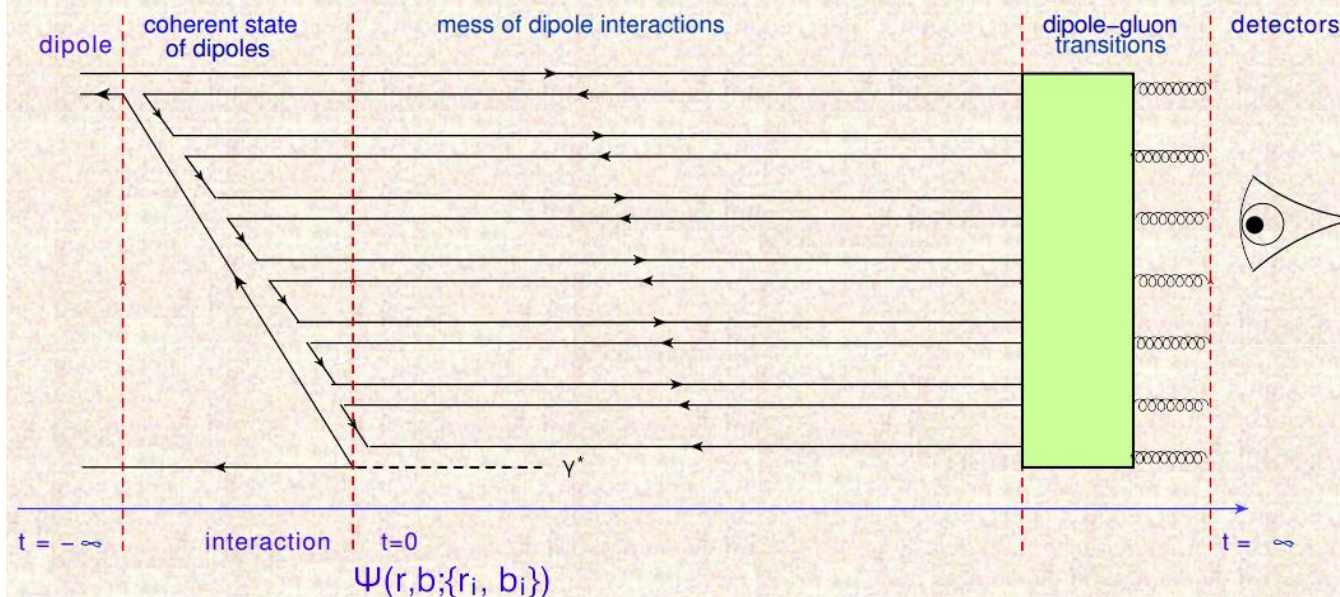
Rewriting the sum as $\sum_{k=1}^{n-1} \Sigma_{n-k}(z) \sigma_k(z) = \frac{1}{2} \frac{d}{dz} \sum_{k=1}^{n-1} \Sigma_{n-k}(z) \Sigma_k(z)$

and introducing $\mathcal{S}_n(z) = \int_{\xi_0^A}^z dz' \Sigma_n(z')$, we have

$$\kappa \frac{d^2 \Sigma_n(z)}{dz^2} = - \frac{d}{dz} (T(z) \Sigma_n(z)) + \frac{d \mathcal{S}_n}{dz} + \frac{1}{2} \frac{d}{dz} \left[\sum_{k=1}^{n-1} \Sigma_{n-k}(z) \Sigma_k(z) \right]$$

J. Garrido "High energy QCD: Evolution equations and particle production"

Gluon production at small- x 23



- The interaction of fast hadron (dipole) with the virtual photon (γ^*). The coherence of the partonic wave function of the fast hadron is destroyed at $t = 0$, while the gluons can be measured at $t = \infty$.

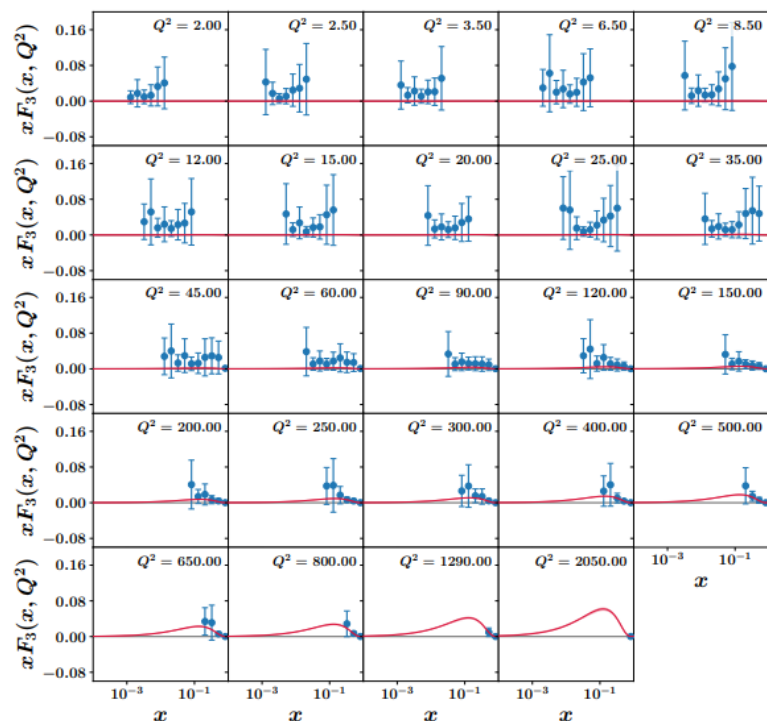
J. Garrido "High energy QCD: Evolution equations and particle production"



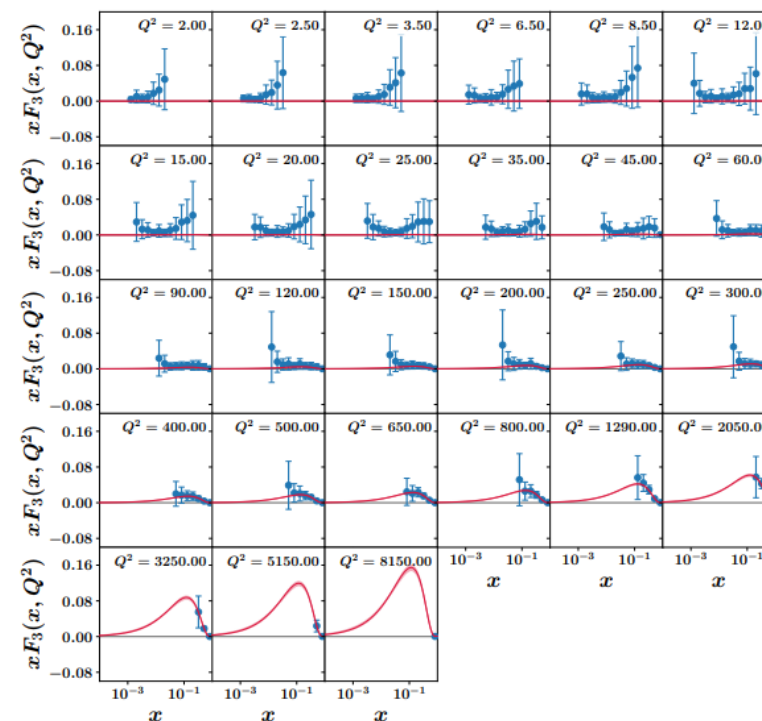
J. Jimenez-Lopez "Model-independent determination of proton structure functions at the Electron-Ion Collider"

Results for xF_3 (optimistic scenario)

S5



S17



Predictions to compare with are done with HERAPDF2.0 NNLO using YADISM (*Eur.Phys.J.C* (2024) 84:697) and points whose uncertainty is above 0.1 are not displayed for visual clarity.

19

J. Jimenez-Lopez "Model-independent determination of proton structure functions at the Electron-Ion Collider"

Where Do We Fit In?

Annual per capita carbon footprint by region [31]

Region	Average (tCO ₂ e)	EIC Physicist (tCO ₂ e)
Africa	0.99	44.25
Asia	4.87	48.13
Europe	6.54	49.80
North America	9.99	53.25
Oceania	9.53	52.79
South America	2.55	45.81

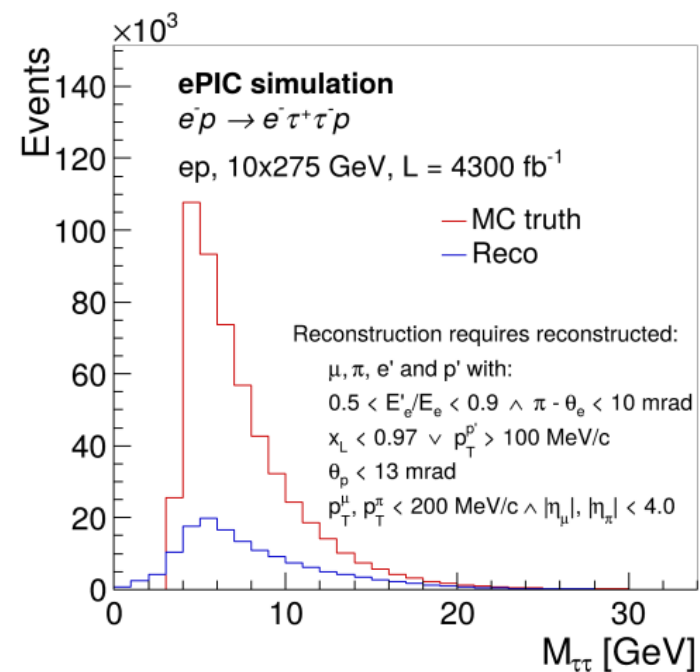
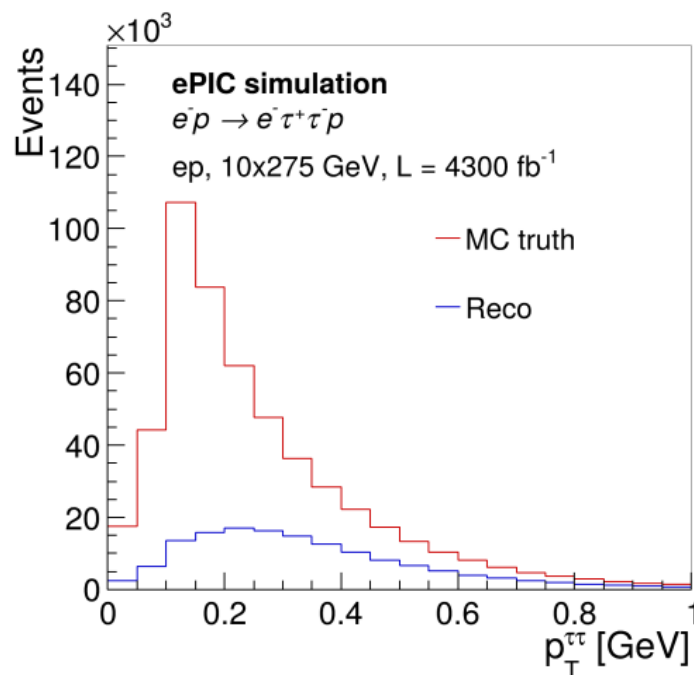
- 64,891.7 tCO₂e annual footprint (operation + community), 1,500 collaborators, **additional 43.3 tCO₂e per capita**
- CERN's per capita footprint estimated to be ~ 33 tCO₂e per year [10, 22]

Invariant mass and transverse momentum of the tau-pair

- The $\tau^+\tau^-$ four-momentum is reconstructed from the initial beams and the scattered electron and proton four-momenta:

$$p_{\tau\tau} = p_e + p_p - p_{e'} - p_{p'}.$$

Only events with fully reconstructed visible decay products (muon and pion) are used.



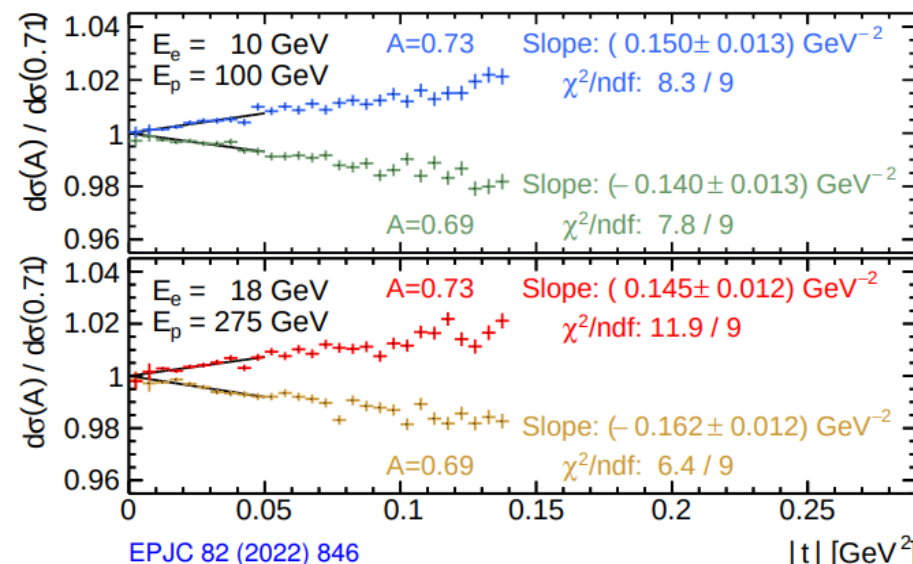
A method for determination of the proton radius at the EIC

- Results presented on this slide are based on the true level only for $ep \rightarrow ep + \mu^+ \mu^-$.
- The mean proton charge radius R_p can be obtained from the proton form factor G_E :

$$G_E(t) = \left(1 - \frac{t}{A_0}\right)^{-2} \Rightarrow \left\{ A_0 = \frac{12}{R_p^2} \right\} \Rightarrow R_p^2 = 6 \frac{dG_E(t)}{dt} \Big|_{t=0}$$

For the “standard” dipol: $A_0 = 0.71 \text{ GeV}^2 \Rightarrow R_p \approx 0.811 \text{ fm}$

- Slope of the cross sections ratio: $\frac{d}{dt} \left(\frac{d\sigma(A_1)/dt}{d\sigma(A_2)/dt} \right) \Big|_{t=0} = \left\{ \frac{d\sigma}{dt} \propto G_E^2 \right\} = \frac{1}{3} (R_1^2 - R_2^2)$



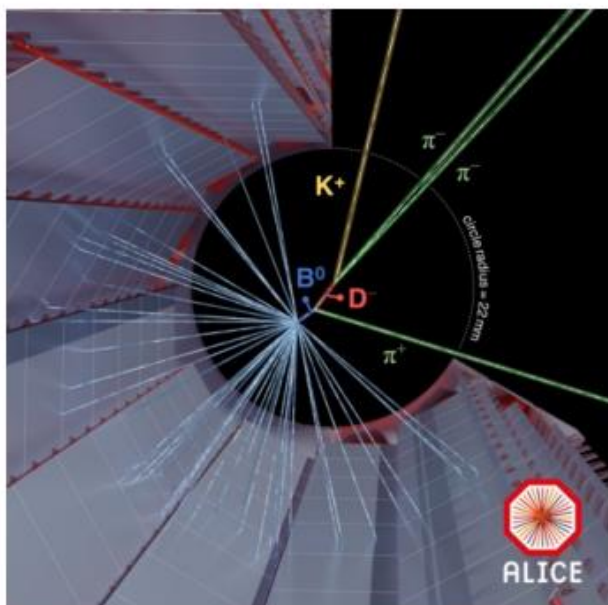
- Expected values of the slope for $A_2 = A_0$:

$A_1 [\text{GeV}^2]$	slope $[\text{GeV}^{-2}]$
0.73	0.154
0.69	-0.163

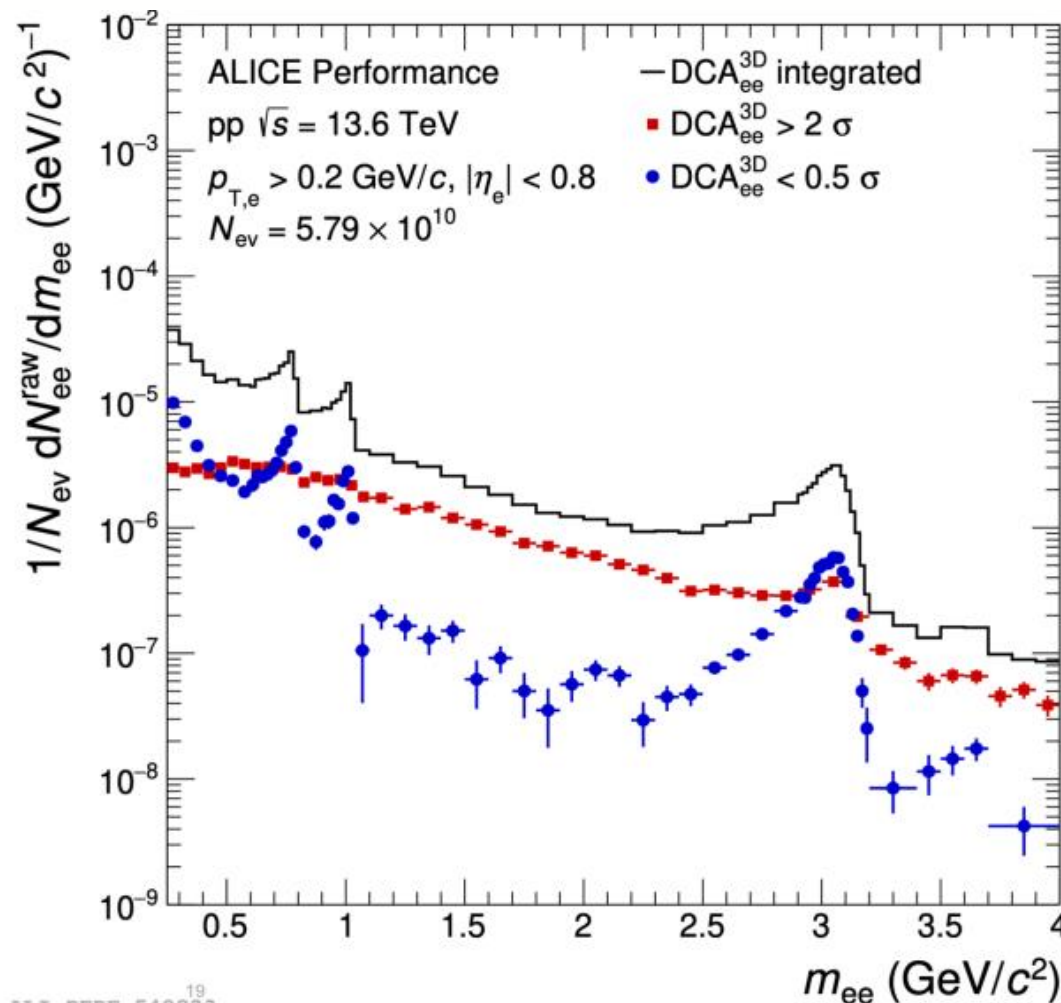
- No scattered electron required to increase σ_{vis} and to avoid sensitivity to bremsstrahlung overlays.
- Stat. errors correspond to $\mathcal{L}_{\text{int}} \approx 100 \text{ fb}^{-1}$.

BACKGROUNDS

- Factor ~ 50 suppression of open heavy flavor achieved in ALICE by cutting out displaced vertices!
 - EIC can do better!



U.S. DEPARTMENT OF ENERGY
Argonne National Laboratory is a U.S. Department of Energy laboratory managed by UChicago Argonne, LLC

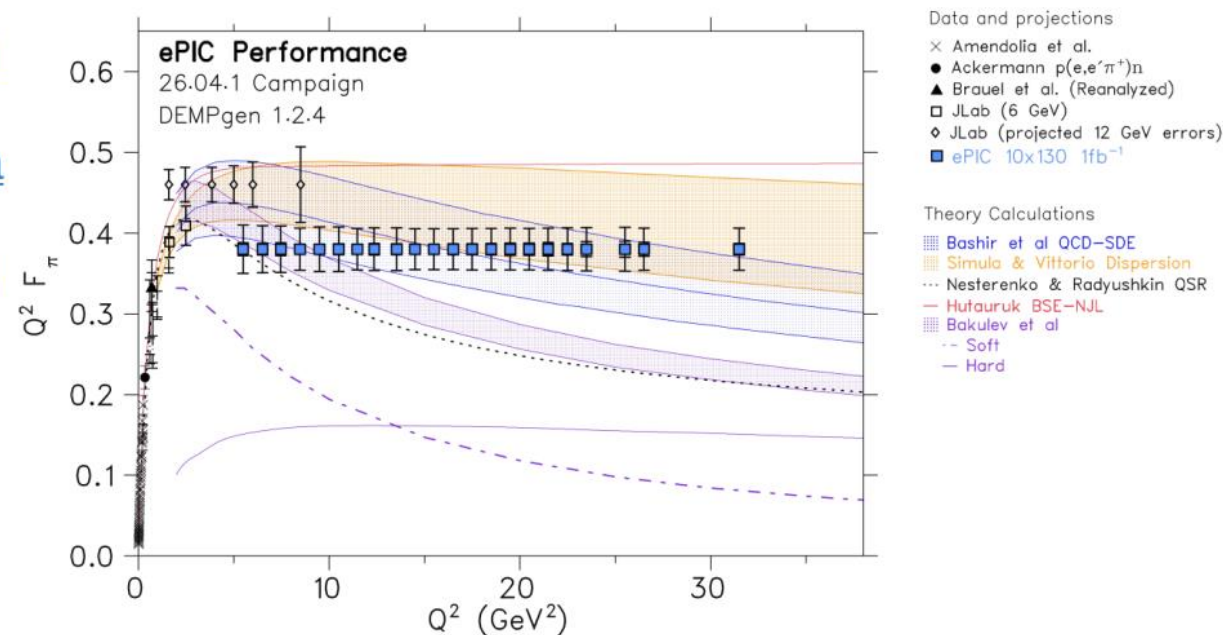


19
ALI-PERF-549823

H. Klest "Drell Yan at the EIC"

Pion Form Factors at the EIC

- ePIC $\rightarrow F_\pi$ to high Q^2 , even in early science period
- Error bars represent real projected error bars
- More details on analysis in [Analysis Note](#)
- Results featured in [Early Science Report](#)
- Results to be updated with latest 9x130 and 9x275 configs very soon!

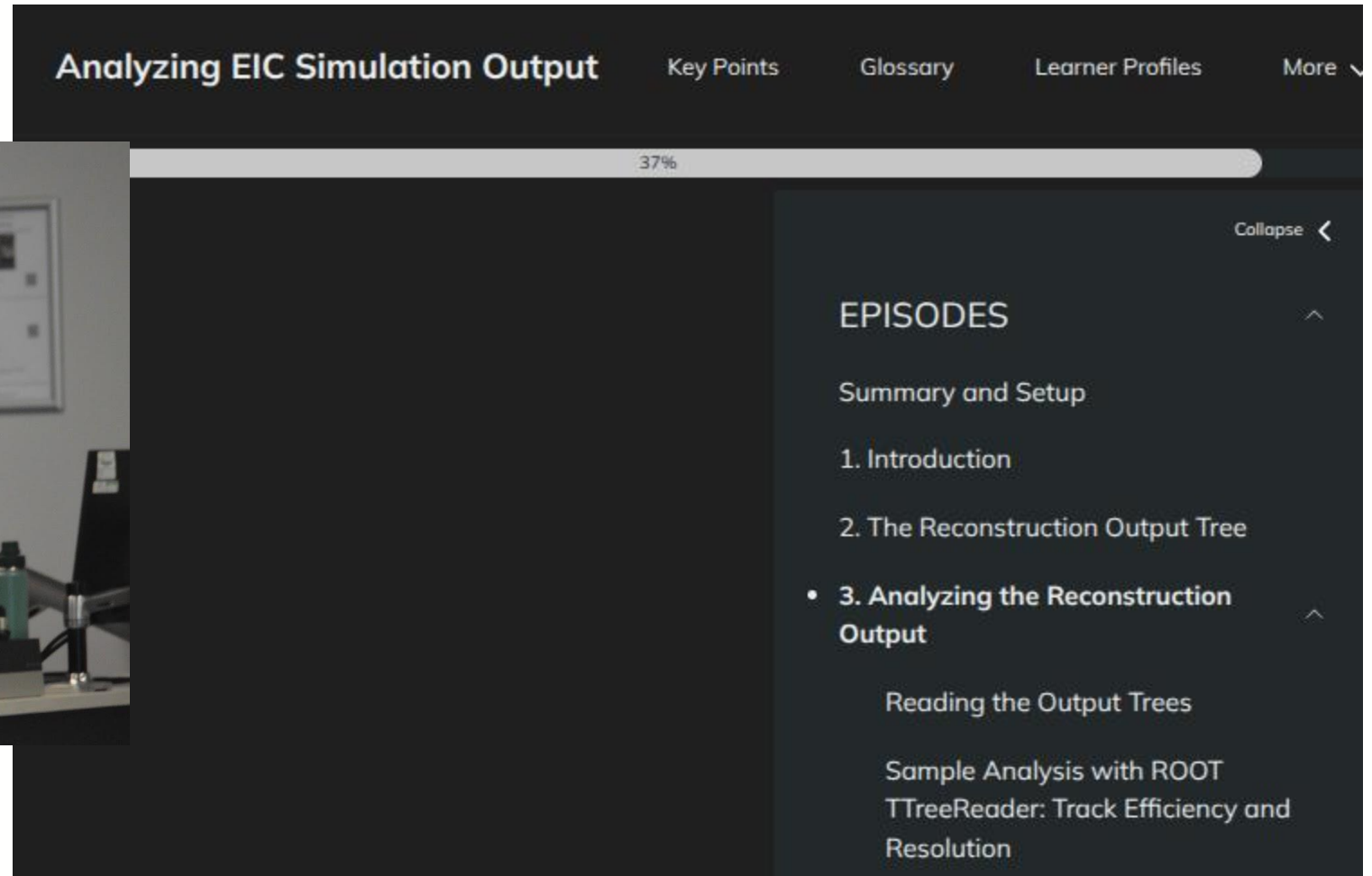


Joint ePIC/EICUG Meeting, July 2026

Early Career Researcher Meeting

19

S. Kay "Meson Structure/Lumi Measurements at the EIC"



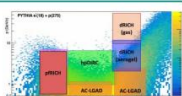
A Massive thank you to Derek, as well as the User Learning Group and Software and Computing team for coordinating to make this happen!

CHARACTERISING MCP-PMTs FOR THE ePIC hpDIRC DETECTOR

Andrew Cheyne, Rachel Montgomery and Kathleen Ramage – on behalf of hpDIRC and eRD10 project teams

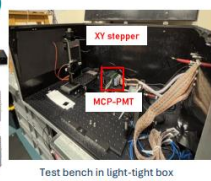
1 Motivation

- Particle identification over broad momentum and pseudorapidity range
- hpDIRC reconstructs Cherenkov cone from internally reflected light



- Silica radiator ($n = 1.46$) with fast photon sensors on exit – MCP-PMTs
- Reconstruction from sensor positional ($<1\text{mm}$) and timing ($<60\text{ps}$) information

2 Experimental Setup



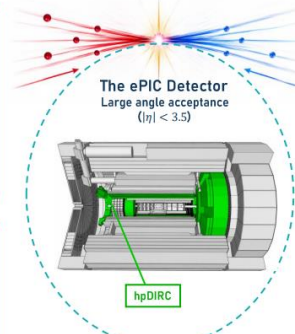
Test bench in light-tight box

6 Conclusion and Future Work

Photek MAPMT240 MCP-PMT is a strong candidate for hpDIRC so far!

- QE and dark count measurements
- HRPPD – priority detector
- Ringing study – Andrew BNL

✉ k.ramage.1@research.gla.ac.uk



The ePIC Detector
Large angle acceptance ($|\eta| < 3.5$)

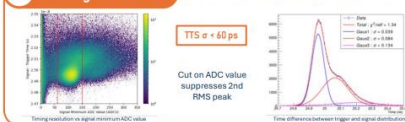
MCP-PMT Performance Comparison			
Metric	Essential	Photonis	Photek
TTS	$>60\text{ ps}$	34.9 ps	32.8 ps
Gain	$>5 \times 10^4$	5×10^4	4×10^4
Gain uniformity	$<20\%$ RMS	TBC	TBC
QE	27% (350nm)	TBC	TBC
QE uniformity	$<10\%$ RMS	TBC	TBC

EIC ECR Glasgow 2026

12/04/2026

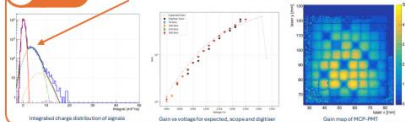
3 Timing Resolution

Between trigger and signal using 50% CFD



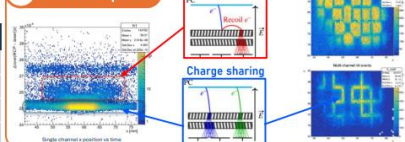
4 Gain

From the integrated single photoelectron pulse charge



5 Pixel Response

Recoil electrons



References

- [1] A. Lehmann et al., Nucl. Inst. Methods A 1065 (2024) 169536
- [2] G. Kalicy, EIC DAC Meeting, June (2025)

* Photek gain capped at their recommended voltage



THE DANGERS OF GENERATIVE AI IN NUCLEAR & HADRON PHYSICS RESEARCH

POWERFUL TOOLS. REAL RISKS. HUMAN VERIFICATION IS ESSENTIAL.

UNCHECKED AI OUTPUTS

AI can confidently generate plausible but incorrect results.

DATA MISINTERPRETATION

Complex patterns can be misread, leading to false conclusions.

MODEL BIAS

Training data biases can skew results and reinforce incorrect theories.

SAFETY RISKS

Incorrect predictions in nuclear and particle physics can lead to unsafe assumptions and real-world consequences.

CRACKED DATA PLOTS

AI-generated plots may look correct but hide critical inconsistencies.

UNSTABLE PARTICLE TRACKS

Hallucinated particles or decays can distort experimental interpretations.

HALLUCINATED EQUATIONS

AI can produce confident-looking equations that are physically incorrect or meaningless.

VERIFY RESULTS

- Cross-check with independent methods
- Validate against experimental data
- Understand model limitations
- Maintain scientific skepticism
- Human oversight is non-negotiable

AI IS A TOOL, NOT A TRUTH SOURCE. IN NUCLEAR & PARTICLE PHYSICS, MISTAKES CAN HAVE CONSEQUENCES. QUESTION. VERIFY. UNDERSTAND.

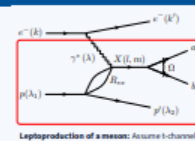
A Partial-Wave Approach for Meson Leptoproduction

Dillon Leahy, Derek Glazier

School of Physics & Astronomy, University of Glasgow

1. Introduction

- A moments-based partial-wave analysis was first developed for photoproduction and has been successful in that setting [1]
- Used at GlueX to search for exotic partial waves associated with hybrid mesons
- Limitation:** Linearly polarised photon beams $\Rightarrow$ two conjugate phase solutions
- Limitation:** No Q^2 dependence, transverse-only amplitudes, and limited current data
- Goal:** Extend the partial-wave framework to electroproduction.
- Why?** More data, Q^2 -dependent structure, and access to longitudinal meson states



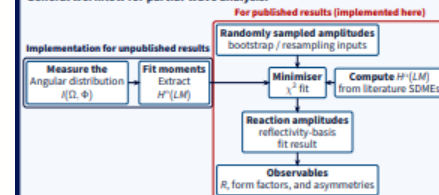
2. The Formalism: From Structure to Amplitudes

- Start with our angular distribution $I(\Omega, \Phi)$ which is binned in (Q^2, t, m_Ω) .
- Separate the lepton-plane angle Φ from the meson-decay angles shown in the diagram.
- $I(\Omega, \Phi) = \sum_{\lambda} \sum_{\lambda'} \sum_{\lambda''} P_{\lambda}(\Phi) P_{\lambda'}(\Phi) H^{\lambda\lambda''}(\Omega)$
- $P_{\lambda}(\Phi)$ separates TT, LL, and LT photon-polarisation terms.
- The observables are the spherical-harmonic moments $H^{\lambda\lambda''}(\Omega)$.
- To resolve the moments a 3-Dimensional Fourier transform of the intensity is effectively performed
- At one beam energy, $\alpha = 0$ (TT) and $\alpha = 4$ (LL) share the same angular dependence and cannot be experimentally resolved
- $H^{\lambda\lambda''}(\Omega) = \sum_{\lambda'} \sum_{\lambda'''} \left(\frac{2\lambda+1}{2\lambda'+1} \right) \left(\frac{2\lambda''+1}{2\lambda'''+1} \right) C_{\lambda\lambda'\lambda''}^{\lambda'''} H^{\lambda\lambda'''}(\Omega)$
- L, M label measured moments; l, m and l', m' label partial waves.
- Clebsch-Gordan coefficients enforce angular momentum selection rules.
- The SDMEs are bilinears of complex production amplitudes:
- $\rho_{lm}^{ll'} = \sum_{\lambda} \sum_{\lambda'} T_{lm\lambda}^* T_{l'm'\lambda}$
- Transform to the reflectivity basis to separate natural and unnatural exchange:
- $[R]_{lm\lambda} = T_{lm\lambda}^* T_{l'm'\lambda} - \eta(-1)^m T_{l'm'\lambda}^* T_{lm\lambda}$
- Each α, l and M then represents an equation of bilinear amplitudes that we want to solve for

3. The Minimisation Procedure

- Fit the amplitudes by minimising the moment residuals
- $\chi^2 = \sum_{\alpha, l, M} \left(\frac{H^{\lambda\lambda''}(\Omega) - H^{\lambda\lambda''}(\Omega)_{\text{fit}}}{\sigma_{H^{\lambda\lambda''}(\Omega)}} \right)^2$
- Bootstrap resampling or Hessian propagation gives uncertainties and correlations

General workflow for partial-wave analysis:



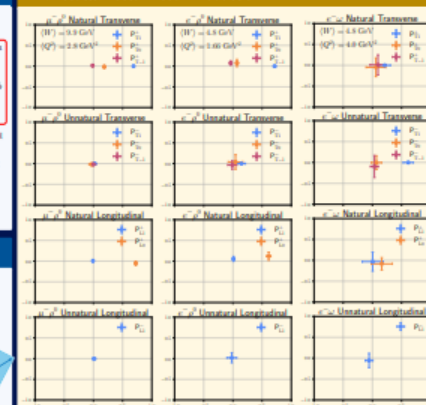
- For vector-meson production, the nonlinear system is over-constrained: 23 constraints and 16 parameters

github.com/dleahy27

EIC/ePIC ECR Conference

d.leahy.1@research.gla.ac.uk

4. Results: Vector Meson Production



- Extracted amplitudes for ρ^0 leptonproduction data [2, 3, 4, 5]
- ρ^0 is dominated by natural exchange.
- ω clearly has a larger unnatural contribution.

5. Results: The Longitudinal to Transverse Cross-Section

- Definition:** $R = \frac{\sigma_L}{\sigma_T} = \frac{H^{\lambda\lambda''}(00)}{H^{\lambda\lambda''}(00)}$
- Conventional longitudinal/transverse separation requires a Rosenbluth separation
- Requires varying the beam energy and high experimental cost
- This method evaluates R at the amplitude level rather than imposing model assumptions
- ρ^0 agrees well with published trends; ω shows clear differences
- Highlights where the unnatural-amplitude-suppression assumption breaks down

6. Conclusions & References

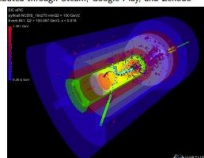
- This formalism introduces a moment-based analysis for electroproduction:
 - Longitudinal amplitudes and Q^2 dependence
 - First separation of longitudinal/transverse sectors from a single beam energy
 - First extraction of previously inaccessible ρ^0 and ω vector-meson amplitudes
- The EIC is an ideal machine for applying this formalism to amplitude extraction
 - Luminosity orders of magnitude above HERA, the previous e^+p collider
 - Access to polarised electron and proton beams

- [1] V. Mathieu et al., doi: 10.1103/PhysRevD.100.054017, arXiv:1903.023-1359-4.
- [2] A. Airapetian et al., doi: 10.1140/epjc/s10052-009-1082-3.
- [3] G. D. Alexeev et al., doi: 10.1140/epjc/s10052-004-0110-1.

Interactive Event Display and Detector Visualization for the Electron-Ion Collider

VIRTUE is a standalone application for visualizing detector geometries and collision event data in an interactive three-dimensional environment. Developed in Unity, the software supports both conventional displays and immersive virtual reality platforms, providing a flexible framework for detector exploration, outreach activities, and educational demonstrations.

- ▶ Available for Windows, macOS, Linux, Android, and virtual reality platforms
- ▶ Includes engineering and simplified models of the ePIC detector
- ▶ Supports interactive navigation, detector inspection, and event animation
- ▶ Distributed through Steam, Google Play, and Zenodo



VIRTUE provides animated visualization of detector response and reconstructed event data within the detector geometry. Event information is displayed in three dimensions and can be explored interactively using playback controls and free camera movement.

- Supports visualization of tracks, hits, clusters, jets, and custom detector objects
- Event displays can be animated as a function of time
- Conversion tools are available for translating EDM4eic ROOT files into the VIRTUE JSON event format
- Users can navigate between events, adjust playback speed, and control viewing angles
- Physics signatures
- Camera positions and displayed components are configurable for each scene
- Tours are defined through JSON files and can be customized without modifying the application
- Includes a preconfigured tour introducing the major ePIC detector subsystems

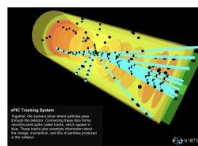
VIRTUE supports the visualization of detector geometries ranging from detailed engineering models to simplified representations designed for clearer event visualization. Detector components can be viewed individually, made transparent, or hidden to expose internal subsystems and improve visibility of event data.

- ▶ Engineering detector models can be imported from standard FBX/CAD files
- ▶ A custom JSON geometry format supports simplified detector representations
- ▶ Components can be labeled, isolated, and rendered with adjustable transparency
- ▶ Distributed with both engineering and simplified models of the ePIC detector



Tour Mode provides a guided presentation framework for detector systems and collision events. A tour consists of a sequence of scenes that control detector visibility, event selection, camera position, and explanatory text, allowing complex topics to be presented in a structured format.

- ▶ Individual scenes can focus on specific detector subsystems or physics signatures
- ▶ Camera positions and displayed components are configurable for each scene
- ▶ Tours are defined through JSON files and can be customized without modifying the application
- ▶ Includes a preconfigured tour introducing the major ePIC detector subsystems



VIRTUE has been used as a visualization platform for outreach activities, educational demonstrations, and detector presentations. Its support for custom geometries and event data also makes it useful for illustrating detector concepts and simulated collision events.

- ▶ Outreach events and public demonstrations
- ▶ Classroom and student instruction
- ▶ Conference presentations and event visualizations
- ▶ Detector design and geometry exploration



- Prizes (3 x £50)
 - CFNS Bjorken Fellowship (Best Student Presentation)
 - Best Postdoc(+) Presentation
 - Best Poster

Prizes were voted for by the ECR themselves. Students voted on postdoc(+) talk prize and postdocs voted on the student talk prize

- Prizes (3 x £50)
 - CFNS Bjorken Fellowship: **Ada Collins**
 - Best Postdoc(+) Presentation:
 - Best Poster

Prizes were voted for by the ECR themselves. Students voted on postdoc(+) talk prize and postdocs voted on the student talk prize

- Prizes (3 x £50)
 - CFNS Bjorken Fellowship: **Ada Collins**
 - Best Postdoc(+) Presentation: **Henry Klest**
 - Best Poster

Prizes were voted for by the ECR themselves. Students voted on postdoc(+) talk prize and postdocs voted on the student talk prize

- Prizes (3 x £50)
 - CFNS Bjorken Fellowship: **Ada Collins**
 - Best Postdoc(+) Presentation: **Henry Klest**
 - Best Poster: **Sean Preins**

A massive well done to all presenters this weekend, and congratulations to Prize winners!

Prizes were voted for by the ECR themselves. Students voted on postdoc(+) talk prize and postdocs voted on the student talk prize

Sponsor Acknowledgements

We would like to thank and acknowledge the UK Institute of Physics (IOP) and the UKRI Science and Technology Facilities Council for their generous support for this meeting



Science and
Technology
Facilities Council

IOP | Institute of Physics
High Energy Particle
Physics Group

IOP | Institute of Physics
Nuclear Physics Group





University
of Glasgow

Thank You!

