

LCG Meeting  
June 22nd 2018



# Physics at Orsay Workshop

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for the LHeC/FCC-eh Study group, <http://cern.ch/lhec>

**With Uta Klein (Liverpool) and Zhiqing Zhang (LAL), many invitations failed, finally:**

- 25 parallel talks (plus two plenaries for physics):
  - 3 detector,
  - 2 EIC (one general, one IR),
  - 3 Higgs + BSM Higgs,
  - 11 QCD,
  - 4 top + EW,
  - 2 BSM.
- Four remote ones (5 minutes for preparation considered before).
- Time shown for presentation only, five additional minutes for discussions not included explicitly.
- Many constrains, we did our best to fulfil them all and keep something consistent.

<https://indico.cern.ch/event/698368/timetable/>

## WEDNESDAY, 27 JUNE

### 09:00 → 11:00 Plenary opening

09:00

Welcome

09:45

Status and Plans for LHeC/FCC-eh

🕒 40m

10:25

Status and Plans for PERLE

🕒 35m

### 11:30 → 13:05 Parallel Sessions (Physics and Detector): I

11:30

High precision polarimetry at the LHeC

Speaker: Aurelien Martens (Univ. P. et Marie Curie (Paris VI) (FR))

🕒 15m

11:50

Forward instrumentation

Speaker: Paul Richard Newman (University of Birmingham (GB))

🕒 15m

12:10

The Electron Ion Collider

Speaker: Bernd Surrow (Temple University)

🕒 25m

12:40

Interaction Region at the EIC

Speaker: Elke Asklenauer (BNL)

🕒 20m

## Detector + EIC

**14:30 → 16:05 Parallel Sessions (Physics and Detector): II**

- 14:30 Review of Higgs coupling determination** 🕒 25m  
 Speaker: Uta Klein (University of Liverpool (GB))
- 15:00 Invisible Higgs and relation to ee and pp, also with DM** 🕒 15m  
 Speaker: Masahiro Kuze (Tokyo Institute of Technology (JP))
- 15:25 Flavor violating signature of Higgs boson at the LHeC (remote)** 🕒 15m  
 Speaker: Jaime Hernández (Benemerita Universidad Autónoma de Puebla)
- 15:45 Impact of LHeC PDFs on LHC EW precision measurements** 🕒 15m  
 Speaker: Nansi Andari (Université Paris-Saclay (FR))

Higgs + EW

**16:30 → 18:00 Parallel Sessions (Physics and Detector): III**

- 16:35 Impact of resummation on Higgs and other observables (remote)** 🕒 15m  
 Speaker: Dr Simone Marzani (Università di Genova and INFN Genova)
- 16:55 Resummation** 🕒 15m  
 Speaker: Amanda Sarkar (University of Oxford (GB))
- 17:15 Color fluctuations and photon-nucleus scattering** 🕒 15m  
 Speaker: Mark Strikman (Pennsylvania State University (US))
- 17:40 Exclusive vector meson production with eSTARLIGHT (remote)** 🕒 15m  
 Speaker: Spencer Klein (University of California Berkeley (US))

QCD + eA

**18:00 → 18:30 Experiments with electrons from PERLE** 🕒 30m

Speaker: Maarten Boonekamp (Université Paris-Saclay (FR))

THURSDAY, 28 JUNE

**09:30 → 11:00 Parallel Sessions (Physics and Detector): IV**

- |              |  |       |
|--------------|--|-------|
| <b>09:30</b> | <b>Detector overview</b><br>Speaker: Max Klein (University of Liverpool (GB))                                  | 🕒 20m |
| <b>09:55</b> | <b>Proton PDFs at the LHeC and the FCC-eh</b><br>Speaker: Gavin Pownall (University of Oxford (GB), DESY (DE)) | 🕒 15m |
| <b>10:20</b> | <b>Towards DIS at NNNLO (remote)</b><br>Speaker: S. Moch (UHH)   | 🕒 15m |
| <b>10:40</b> | <b>Diffraction</b><br>Speaker: Anna Stasto (Pennsylvania State University (US))                                | 🕒 15m |

Detector +  
QCD + eA

**11:30 → 13:05 Parallel Sessions (Physics and Detector): V**

- |              |  |       |
|--------------|--|-------|
| <b>11:30</b> | <b>Elastic vector meson production</b><br>Speaker: Dr Heikki Mäntysaari (University of Jyväskylä)  | 🕒 15m |
| <b>11:50</b> | <b>A view on small-x physics</b><br>Speaker: Cyrille Marquet (CPHT - Ecole Polytechnique)  | 🕒 20m |
| <b>12:15</b> | <b>How could heavy ion physics at the energy frontier profit from LHeC measurements (EXP point of view)</b><br>Speaker: Astrid Morreale (Centre National de la Recherche Scientifique (FR))  | 🕒 20m |
| <b>12:40</b> | <b>How could heavy ion physics at the energy frontier profit from LHeC measurements (TH point of view)</b><br>Speaker: Elena Gonzalez Ferreiro (Universidade de Santiago de Compostela (ES)) | 🕒 20m |

QCD + eA



**14:30** → 15:40

**Parallel Sessions (Physics and Detector): VI**

**14:30**

**Overview on top physics**

Speaker: Christian Schwanenberger (Deutsches Elektronen-Synchrotron (DE))

🕒 20m

**14:55**

**Top Quark FCNC  $tq\gamma$  and  $tqZ$  Couplings at LHeC and FCC-eh**

Speaker: Orhan Cakir (Ankara University (TR))

🕒 15m

**15:15**

**Update on studies with inclusive DIS on EW physics at LHeC/FCC-eh**

Speaker: Daniel Britzger (Ruprecht Karls Universitaet Heidelberg (DE))

🕒 20m

**Top and EW**

**16:10** → 17:00

**Parallel Sessions (Physics and Detector): VII**

**16:10**

**Review on sterile neutrinos**

Speaker: Oliver Fischer (Unibas)

🕒 20m

**16:35**

**Review on BSM**

Speaker: Monica D'Onofrio (University of Liverpool (GB))

🕒 20m

**BSM**

**17:00** → 17:30

**Novel High-Energy Electron-Proton Collider Physics at the LHeC**

Speaker: Stanley J. Brodsky (SLAC National Accelerator Laboratory, Stanford University)

🕒 30m

FRIDAY, 29 JUNE		
08:30 → 10:00	<b>PERLE: IB Closed Session</b> Conveners: Achille Stocchi (LAL CNRS Universite Paris Sud), Oliver Bruning (CERN)	
10:00 → 11:00	<b>Reports on Accelerator and PERLE</b>	🕒 1h
11:00 → 11:15	<b>Coffee</b>	
11:15 → 12:15	<b>Reports on Physics and Detector</b>	🕒 1h
12:15 → 13:00	<b>Summary and Outlook Session</b>	🕒 45m

LCG Meeting  
June 22nd 2018

# Accelerator at Orsay Workshop



Oliver Brüning (CERN)



## WEDNESDAY, 27 JUNE

### 09:00 → 11:00 Plenary opening

09:00

Welcome

09:45

Status and Plans for LHeC/FCC-eh

⌚ 40m

10:25

Status and Plans for PERLE

⌚ 35m

### 11:30 → 13:10 Parallel Sessions (Accelerator and PERLE): I

11:30

Why PERLE as an ERL demonstrator

Speaker: Peter Williams

⌚ 20m

11:55

Upgrade of the ALICE e- Photocathode Gun to 20mA

Speaker: Boris Militsyn (STFC)

⌚ 20m

12:20

Design of PERLE injector

Speaker: Benjamin Hounsell (Liverpool University -LAL)

⌚ 20m

12:45

Report on PERLE magnet Design

Speaker: Cynthia Vallérand (LAL-CNRS)

⌚ 20m

**14:30** → 16:05

## Parallel Sessions (Accelerator and PERLE): II

- 14:30**

**Recent Results on a Multi-Cell 802 MHz bulk Nb Cavity**

Speaker: Alex Bogacz (JLAB)

🕒 20m
- 14:55**

**Development and Study of HOM coupler for the SRF ERL**

Speaker: Shahmam Gorgi Zadeh (Rostock University)

🕒 20m
- 15:20**

**Cryostat Options for the SRF of the ERL of the LHeC and FCC-eh implementations**

Speaker: Sébastien Bousson (IPNo-CNRS)

🕒 20m
- 15:45**

**Production of electron beams using lasers at CERN: research, development and operation**

Speaker: CERN TBD

🕒 20m

**16:30** → 18:00

## Parallel Sessions (Accelerator and PERLE): III

- 16:30**

**The FFAG return arc option for PERLE and LHeC**

Speaker: Dejan Trbojevic (BNL)

🕒 25m
- 17:00**

**Possible nuclear-physics avenues offered by a Orsay-hosted 450-MeV PERLE**

Speaker: David Verney (IPNo-CNRS)

🕒 25m
- 17:30**

**ERL requirements and operation goals for electron beam based hadron beam cooling at the EIC design options**

Speaker: Dejan Trbojevic (BNL)

🕒 25m

THURSDAY, 28 JUNE

**09:30** → 11:00 **Parallel Sessions (Accelerator and PERLE): IV**

- |              |  |       |
|--------------|--|-------|
| <b>09:30</b> | <b>Summary of the CBETA status and commissioning</b><br>Speaker: Georg Hoffstaetter (Cornell University) | 🕒 25m |
| <b>10:00</b> | <b>Summary of the bERLinPro status and commissioning</b><br>Speaker: Bettina Kuske (Helmholtz-Berlin)    | 🕒 25m |
| <b>10:30</b> | <b>Summary and Status of the MESA ERL</b><br>Speaker: Florian Hug (Mainz University)                     | 🕒 25m |

**11:30** → 13:10 **Parallel Sessions (Accelerator and PERLE): V**

- |              |   |       |
|--------------|---|-------|
| <b>11:30</b> | <b>Scaling options and cost estimate for the LHeC ERL</b><br>Speaker: Oliver Bruning (CERN)             | 🕒 20m |
| <b>11:55</b> | <b>Options for the LHeC ERL – Performance Optimization</b><br>Speaker: Alex Bogacz (JLAB)               | 🕒 20m |
| <b>12:20</b> | <b>Progress with FCC-eh IR design and SR load</b><br>Speaker: Roman Martin (CERN)                       | 🕒 20m |
| <b>12:45</b> | <b>Update on the civil engineering work for LHeC and FCC-eh</b><br>Speaker: Matthew James Stuart (CERN) | 🕒 20m |

14:30

→ 15:45

## Parallel Sessions (Accelerator and PERLE): VI

14:30

**CLIC Technology as an Option for the electron accelerator of an eh collider**

Speaker: Frank Zimmermann (CERN)

🕒 20m

14:55

**Development of High Current Polarized e- guns**

Speaker: Joseph Grames (JLAB)

🕒 20m

15:20

**Performances of thermionic cathodes**

Speaker: Diego Perini (CERN)

🕒 20m

16:10

→ 17:00

## Parallel Sessions (Accelerator and PERLE): VII

16:10

**Latest Developments and Progress on the IR magnet design**

Speaker: Brett Parker (BNL)

🕒 20m

16:35

**Dynamic Aperture in the LHeC and FCC-eh with IR magnet errors**

Speaker: Emilia Cruz Alaniz (CERN)

🕒 20m