# EIC_NET MEETING

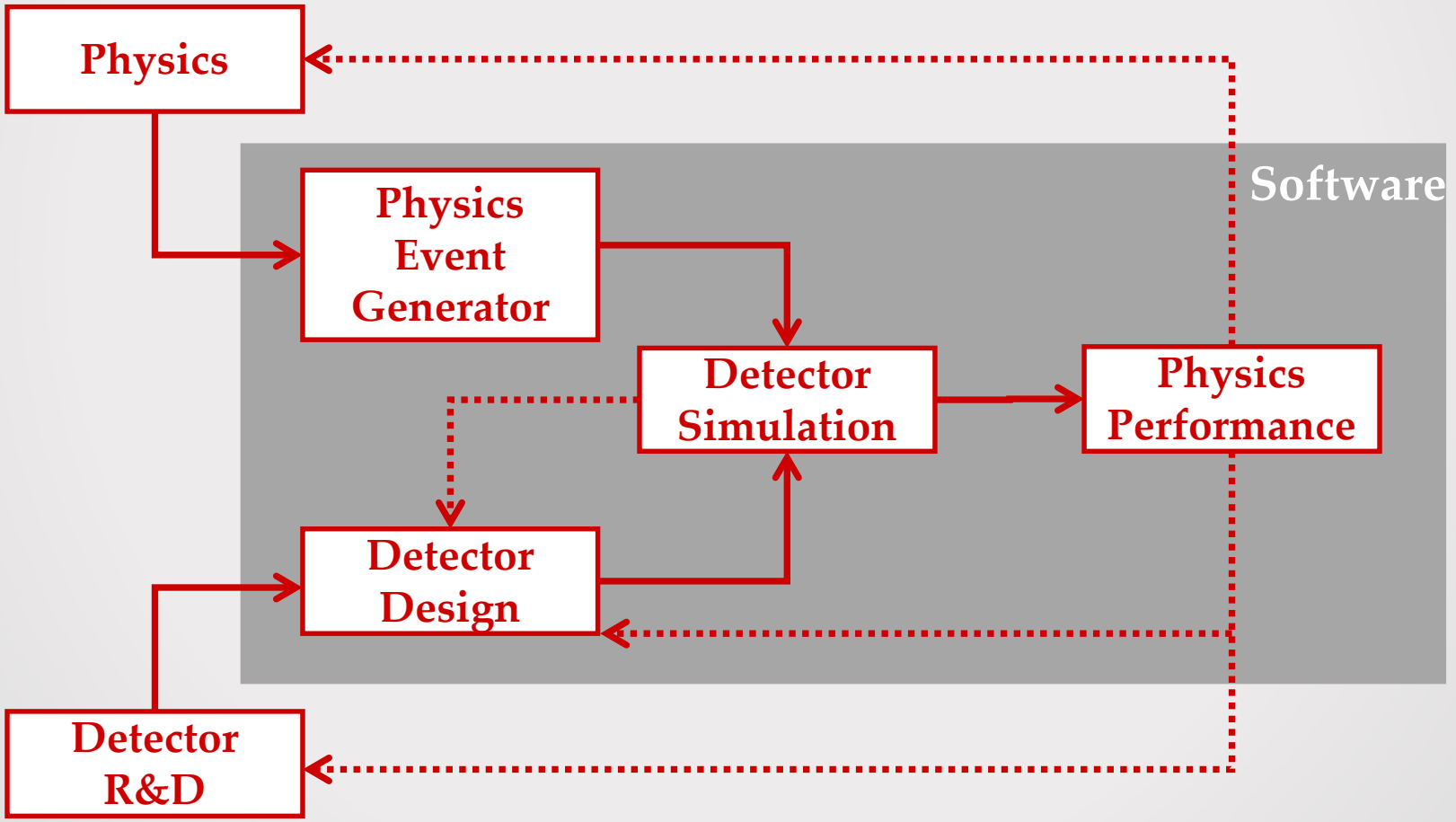
# EIC SOFTWARE, TS

A. Bressan

# Outlook

- ESC – EIC Software Consortium
- Activities/Meetings

# EIC R&D and software development



# Global objectives

- **Interfaces and integration**
  - connect existing frameworks / toolkits
  - identify the key pieces for a future EIC toolkit
  - collaborate with other R&D consortia
- **Planning for the future with future compatibility**
  - workshop to discuss new scientific computing developments and trends
  - incorporating new standards
  - validating our tools on new computing infrastructure
- **Organizational efforts with an emphasis on communication**
  - build an active working group and foster collaboration
  - documentation about available software
  - maintaining a software repository
  - workshop organization

# Few specific activities/progress

- GEANT4 – 4 EIC
  - Makoto Asai (Standford), spokesperson the GEANT4 collaboration will be the contact person in order with to progress on item needed by EIC and presently not enough developed:
    - RICH
    - …
  - GEANT4 is considered the standard for apparatus simulation (even fast simulation by switching off showers and applying fast modelisations)
- GEOMETRY DESCRIPTION
  - The standard for geometrical description has be chosen in May by ESC after some discussion in previous meetings; this will be GDML: "We recognize that the GDML format is currently the only *de-facto* standard that can be used natively used by Geant4 and ROOT applications. Many other applications that do not build directly on this format do still have converter to at least export to this format"
  - The problem that GDML doesn't supports the definition of Sensitive detectors (SDs) will be solved by defining them in a separate file.
- INPUTS:
  - both Google standard ProMC and
  - HepMC

# Meetings

## EIC Software Consortium Meeting

from Thursday, 17 May 2018 at **10:00** to Friday, 18 May 2018 at **17:00** (US/Eastern)
at **Small Hall at College of William & Mary ( Room 122 )**

**Description** We will use Blue Jeans for the remote meeting (**Meeting ID** 268888795).

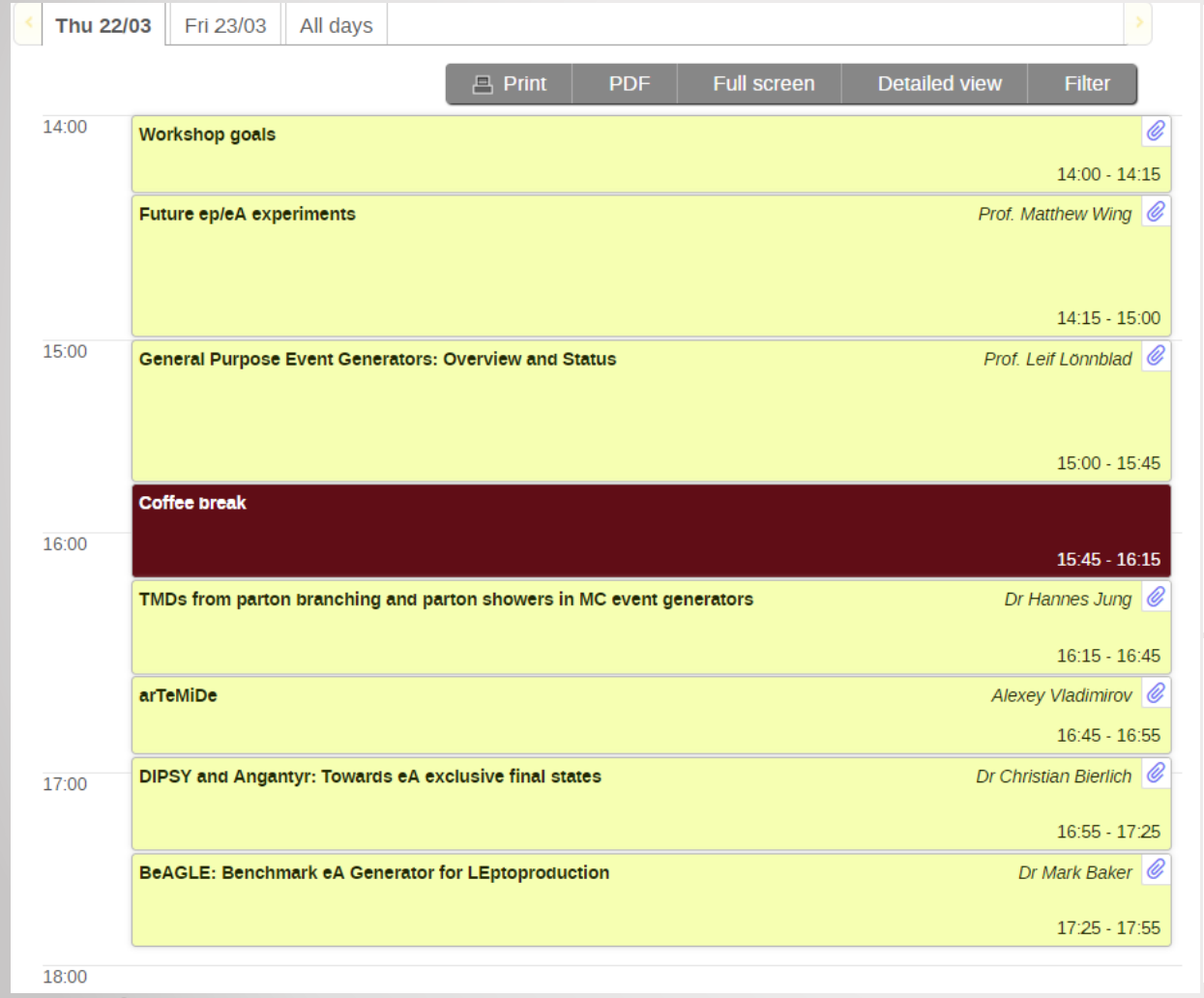
You can join via browser or dial in via (888) 240-2560.

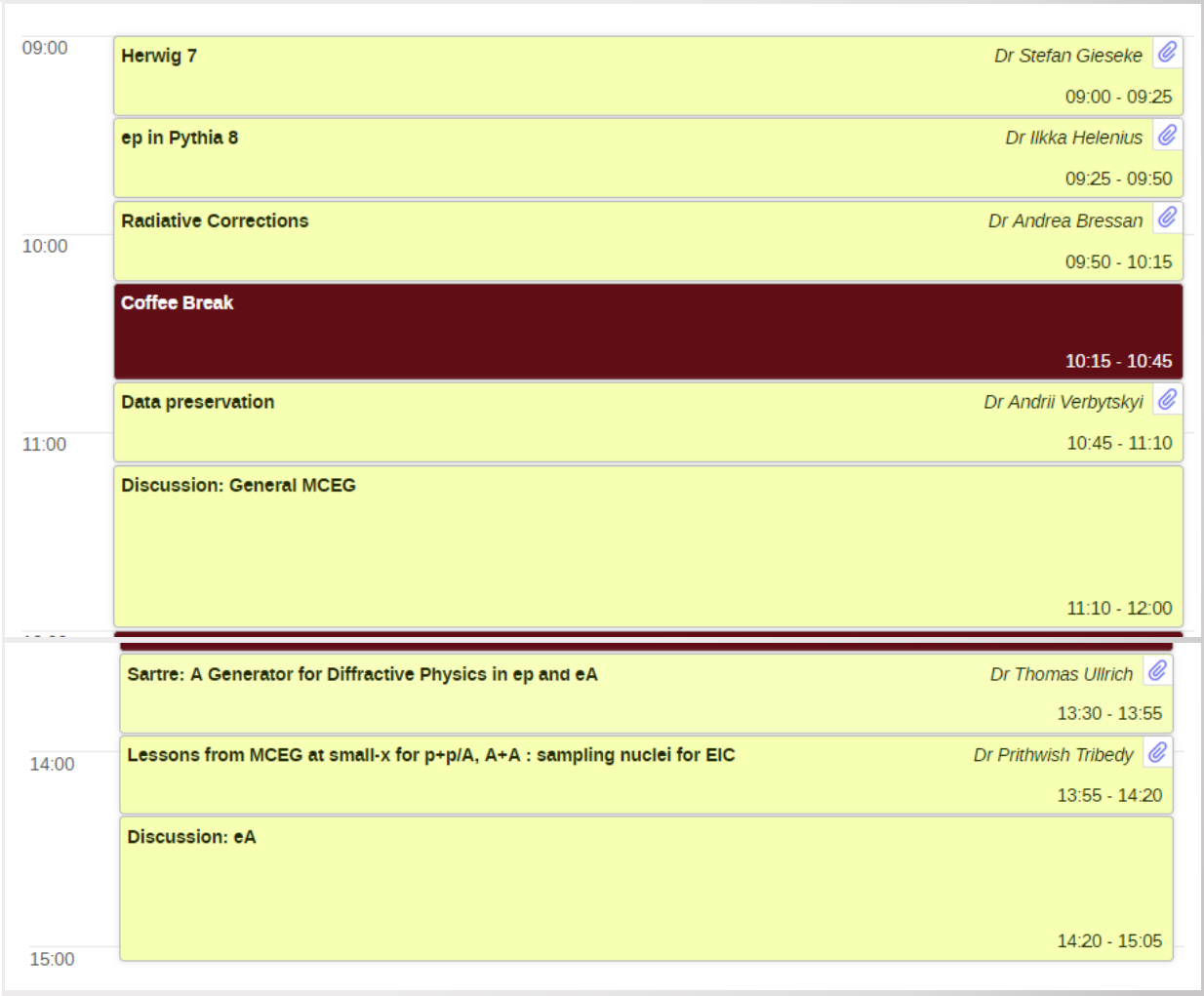
**Previous meetings**:

- ESC Meeting at BNL (Oct. 17 2016)
- ESC Meeting at BNL (Feb. 8-10 2017)
- ESC Meeting at JLab (May 1-2 2017)
- ESC Meeting at SLAC (Jul. 6-7 2017)
- ESC Meeting at ANL (Oct. 16-17 2017)

**Material:** **Location** **Parking**

# Monte Carlo Workshops @ POETIC 2018



# Rivet ep preservation meeting
# MCEGs for future ep and eA facilities

## Monday, February 18, 2019

13:30 - 14:00 Registration *30'*

14:00 - 23:50 HERA lessions

- 14:00 **Intro** *10'*
  Material: Slides
- 14:10 **H1 analyses (not) in Rivet/HZTool** *20'*
  Speaker: Stefan Schmitt (DESY)
  Material: Slides
- 14:35 **Issues in HERA measuremnts** *20'*
  Speaker: Achim Geiser (DESY)
  Material: Slides
- 15:00 **Preservation of HERA data and options for HERA data re-analyses** *20'*
  Speaker: Dr. Andrii Verbytskyi (Max-Planck Institut für Physik)
  Material: Slides
- 15:25 **Break** *20'*
- 15:45 **Rivet-HZTool wrapper** *20'*
  Speaker: Simon Plaetzer
  Material: Slides
- 16:35 **Discussion on implementation of HERA analyses into Rivet** *1h30'*
- 19:00 **Dinner downtown** *2h0'*

## Tuesday, February 19, 2019

09:00 - 10:30 Working group

- 09:00 **Working group program** *5'*
  Material: Slides

10:30 - 11:00 Break

11:00 - 12:30 Working group

14:00 - 15:30 Working group

- 14:00 **Rivet Intro** *20'*
  Speaker: Andy Buckley
  Material: Slides

15:30 - 16:00 Break

16:00 - 18:00 Working group

## Wednesday, February 20, 2019

09:00 - 10:30 Working group

10:30 - 11:00 Break

11:00 - 12:00 Wrapping up
Material: slides

## Wednesday, February 20, 2019

14:00 - 15:45 General-Purpose MCEG: Precision for ep processes

- 14:00 **Intro** *5'*
  Speaker: Dr. Hannes Jung (DESY)
  Material: Slides
- 14:05 **Simulation of ep and eA processes in general-purpose MCEG** *30'*
  Speaker: Dr. Ilkka Helenius (University of Jyväskylä)
  Material: Slides
- 14:35 **Status of higher-order QCD predictions for DIS** *30'*
  Speaker: Dr. Stefan Hoeche (SLAC)
  Material: Slides
- 15:05 **Status of MG5 aMC@NLO for ep colliders** *10'*
  Speaker: Dr. Buarque Franzosi Diogo (Chalmers University of Technology)
  Material: Slides
- 15:15 **Discussion** *30'*

15:40 - 16:00 Coffee

16:00 - 18:00 General-Purpose MCEG: Combining QED+QCD effects

- 16:00 **QED corrections for electron scattering** *30'*
  Speaker: Prof. Hubert Spiesberger (Johannes Gutenberg- Universität Mainz)
  Material: Slides
- 16:30 **Semi-analytic vs. Monte-Carlo Approaches for QED Corrections to SIDIS** *30'*
  Speaker: Prof. Andrei Afanasev (George Washington University)
  Material: Slides
- 17:00 **Discussion and next steps** *1h0'*

# Rivet ep preservation meeting
# MCEGs for future ep and eA facilities

## Thursday, February 21, 2019

09:00 - 10:30 TMDs and MCEGs: Part I

09:00 **TMDs from Parton Branching** *30'*
Speaker: Dr. Francesco Hautmann
Material: Slides

09:30 **nTMD using PB method** *30'*
Speaker: Prof. Krzysztof Kutak (Institute of Nuclear Physics Polish Academy of Sciences)
Material: Slides

10:00 **Updates for KaTie** *30'*
Speaker: Dr. Andreas van Hameren (Institute of Nuclear Physics Polish Academy of Sciences)
Material: Slides

10:30 - 11:00 Coffee

11:00 - 12:00 TMDs and MCEGs: Part II

11:00 **TMD and parton shower: CASCADE-3** *30'*
Speaker: Dr. Hannes Jung (DESY)
Material: Slides

11:30 **Revisited version of a recursive model for the fragmentation of polarized quarks** *30'*
Speaker: Albi Kerbizi (University of Trieste)
Material: Slides

12:00 - 14:00 Lunch

14:00 - 15:30 TMDs and MCEGs: Part III

14:00 **Discussion: TMDs and MCEG** *1h30'*

15:30 - 16:00 Coffee

16:00 - 18:30 GPDs and MCEGs

16:00 **Towards event generation for GPD physics with PARTONS** *30'*
Speaker: Dr. Herve Moutarde (IRFU, CEA)
Material: Slides

16:30 **DVCS and exclusive pi0 event generator for JLab fixed-target experiments** *30'*
Speaker: Dr. Carlos Munoz Camacho (IPN-Orsay)
Material: Slides

17:00 **Discussion: GPDs and MCEGs** *1h0'*

## Friday, February 22, 2019

09:00 - 10:30 Requirements

09:00 **Physics at an EIC: Consequences for MC Generators** *30'*
Speaker: Dr. Elke-Caroline Aschenauer (BNL)
Material: Slides

09:30 **Jets in eA Collisions: Challenges and Opportunities for MCEGs** *30'*
Speaker: Dr. Kolja Kauder (BNL)
Material: Slides

10:00 **Discussion** *30'*

10:30 - 11:00 Coffee

11:00 - 12:00 Wrapping up

MCEGs for future ep and eA facilities

MCEGs for future ep and eA facilities
20-22 February 2019
Bldg 3
Europe/Berlin timezone

- Overview
- Scientific Programme
- Timetable
- Contribution List
- Author List
- Registration
  - Registration Form
- Participant List
- Accomodation
- Poster
- How to get to DESY
- International Office

The second workshop on "**MCEGs for future ep and eA facilities**" will take place at DESY Hamburg on February 20 (after lunch) - 22 (before lunch), 2019. We will review recent R&D on Monte Carlo Event Generators (MCEGs) for lepton-proton (ep) and lepton-nucleus (eA) collisions and will discuss the requirements and R&D needs for the MCEGs for the future EIC, LHeC, and VHEeP facilities.

The workshop is organized by scientists working on the EIC, E.-C. Aschenauer (BNL), A. Bressan (INFN, Trieste) and M. Diefenthaler (JLab), and scientists from the MCnet community, H. Jung (DESY) S. Plätzer (Vienna) and S. Prestel (Lund). The meeting will follow the "Rivet ep preservation meeting" at DESY Hamburg. Rooms for the workshop participants will be available at the DESY Guest House, please use „Terascale“ as group.

For the remote connection, we will use Vidyo:

- If you would like to join by brower, please follow: https://vidyoportal.cern.ch/flex.html?roomdirect.html&key=Nh6qpY4rP69Q
- If you want to join by phone, please use one of the phone numbers listed by CERN and enter the meeting extension of 1010403749.

Starts Feb 20, 2019 13:00
Ends Feb 22, 2019 13:00
Europe/Berlin

Bldg 3
BAH!

summary

# EIC Software Meeting

20-21 May 2019
University Campus
Europe/Rome timezone



Support

mceg2018.support@ts.i...

The "in person" meeting of the Software Working Group will be take place in Trieste, Italy, on May 20- 21, 2019.

We will show in tutorials the status of the EIC Software and plan our next steps. We will also have contributions from the Geant4 International Collaboration, the HEP Software Foundation (HSF), and the ROOT team at CERN as well as from selected HEP experiments to discuss possible common projects and collaboration with other software initiatives

**Organized by**:

EIC Software Consortium (ESC) and EIC User Group Software Working Group with the local support of INFN Trieste and of the University of Trieste

**Secretariat and Contact**:

**Starts** 20 May 2019, 09:00
**Ends** 21 May 2019, 18:30
Europe/Rome

University Campus
Sala Atti "Francesco Cacciaguerra"
Building A, right wing, 1st floor
Piazzale Europa, 1 – 34127
Trieste

Alexander Kiselev
Andrea Bressan
Markus Diefenthaler

EIC Software Meeting.pdf

Web content manager: A. Bressan

**Registration**
Registration for this event is currently open.
Register now