

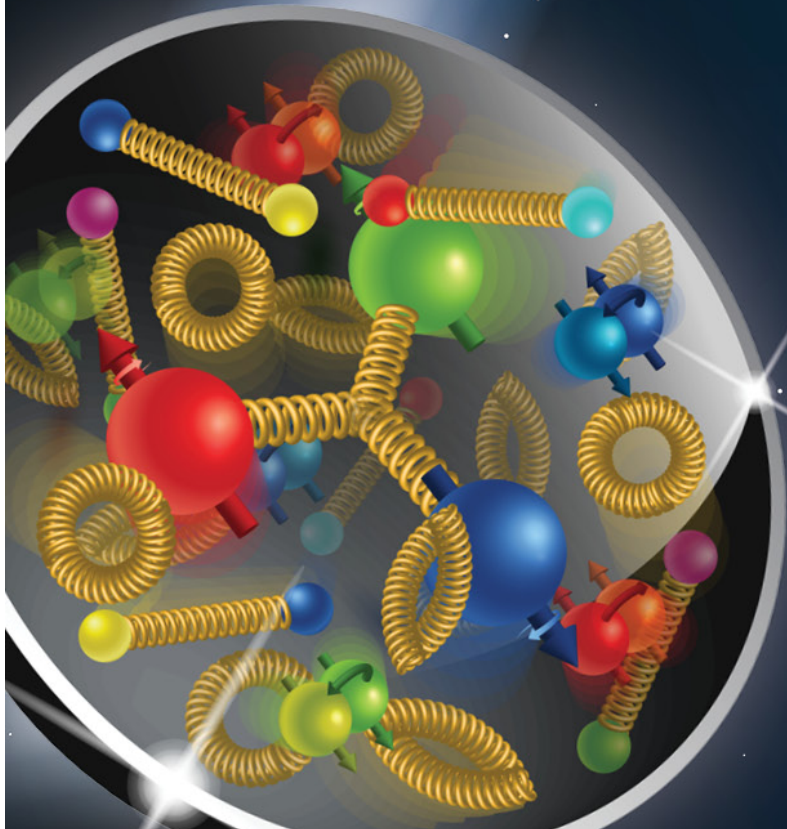
# EIC Workshop Impressions

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EIC Workshop – *Promoting Collaboration on  
the Electron-Ion Collider*

9 October 2020

Electron-Ion Collider



# Participation

- 361 invited participants – nearly 40 were added since meeting started
- 24 countries (Senegal, Africa, was a late addition)
- 6 continents – only Antarctica failed to join the party
- **A truly global event!**
- 76 scheduled talks
- 33 hours of presentations spread across 16 sessions in a period of 50 hours
- If you attended all the talks, you maybe got a maximum of 2 x 5 hours sleep!

# Collaboration

- Evidence of **very strong interest in collaboration** from many North American and overseas laboratories
- The hosts labs (BNL/JLAB) naturally took the lead with 19 presentations
- **11 other North/South American labs** made contributions:
  - ANL (4 talks), LBNL (3), FNAL (2), SLAC (2), U. Guanajuato Mexico (2), ORNL, TRIUMF, Cornell U.,
  - U. Kansas, NIU, LNLS (Brazil)
- **6 Asia/Oceania labs** made contributions:
  - KEK (7 talks), JPARC, Spring-8, PAL (S. Korea), SLRI (Thailand), ANSTO (Australia)
- **12 Europe/Africa labs** made contributions:
  - Cockcroft (4 talks), PAS Poland (3), CERN (2), INFN Frascati (2), iThemba RSA (2), John Adams (2),
  - DESY, CEA Saclay, IJC Paris, U. Rome “La Sapienza”, T.U. Dortmund, AGH-UST Poland
- In addition, we had 3 talks about **accelerator schools** in USA, Europe and Japan
- And 2 talks from **accelerator industry** in USA (Euclid TechLabs LLC & RadiaSoft LLC)

# Areas of R&D Collaboration?

Outside the host labs, the following R&D areas were identified (a non-exhaustive list):

- Storage Ring technology – ANL, ANSTO
- SRF technology – ANL, FNAL, TRIUMF, SLAC, Cornell, CERN, CEA Saclay, Cockcroft, Euclid, ODU, Guanajuato
- Crab cavities – KEK, CERN, FNAL, TRIUMF, ODU, Cockcroft
- Magnet technology – FNAL, LBNL, TRIUMF, CERN, CEA Saclay
- Cryogenics – FNAL
- Vacuum technology – PAL, CERN
- Pulse power technology – ORNL, KEK
- Fast kickers & RF bunch switcher – ANL, TRIUMF, JPARC
- Accelerator controls & instrumentation – LBNL, CERN, SLAC
- Hadron beam cooling/ERL – ANL, FNAL, Cockcroft, IJC Paris, KEK, Cornell
- Polarized heavier ion beams – ANL, CERN
- Polarized sources – TRIUMF, CERN
- High brightness electron gun – ANL, TRIUMF, Spring-8, Euclid, Cockcroft
- Beam physics (FFA optics, spin, collective effects, etc.) – TRIUMF, FNAL, Rome “Sapienza”, CEA Saclay, KEK
- Non-invasive proton beam diagnostics – ORNL, TRIUMF, Cockcroft, John Adams, PAS Poland
- Electron beam diagnostics - SLAC
- Simulation tools – ANL
- Modelling beam-beam effects – LBNL
- PIC simulation – ORNL

- Machine Detector Interface – FNAL, CERN
- Impedance model, instabilities, HOM, ion instability – CERN
- 2<sup>nd</sup> interaction region – Cockcroft
- Electron-cloud mitigation – FNAL, INFN Frascati, Cockcroft
- Heavy ion beam collimation – John Adams
- Electron beam collimation - KEK
- Machine learning – iThemba RSA, RadiaSoft
- Dynamic aperture – SLAC
- Luminosity measurement – AGH UST Poland
- Crab waist - INFN Frascati

# Collaboration Models?

- Collaboration on R&D – synergies with other projects e.g. FCCee, LHeC, PERLE, APS, etc.
- In-kind contributions – funding agency agreements