

CFNS – CTEQ EIC Summer School 2023 & Beyond

Abhay Deshpande (CFNS, Stony Brook & BNL)

for

Frederick Olness (CTEQ, SMU) & Alexei Prokudin (CFNS, PSU-Berks)

Center for Frontiers in Nuclear Science ([CFNS](#))

[APS TV Movie on CFNS 2019](#)

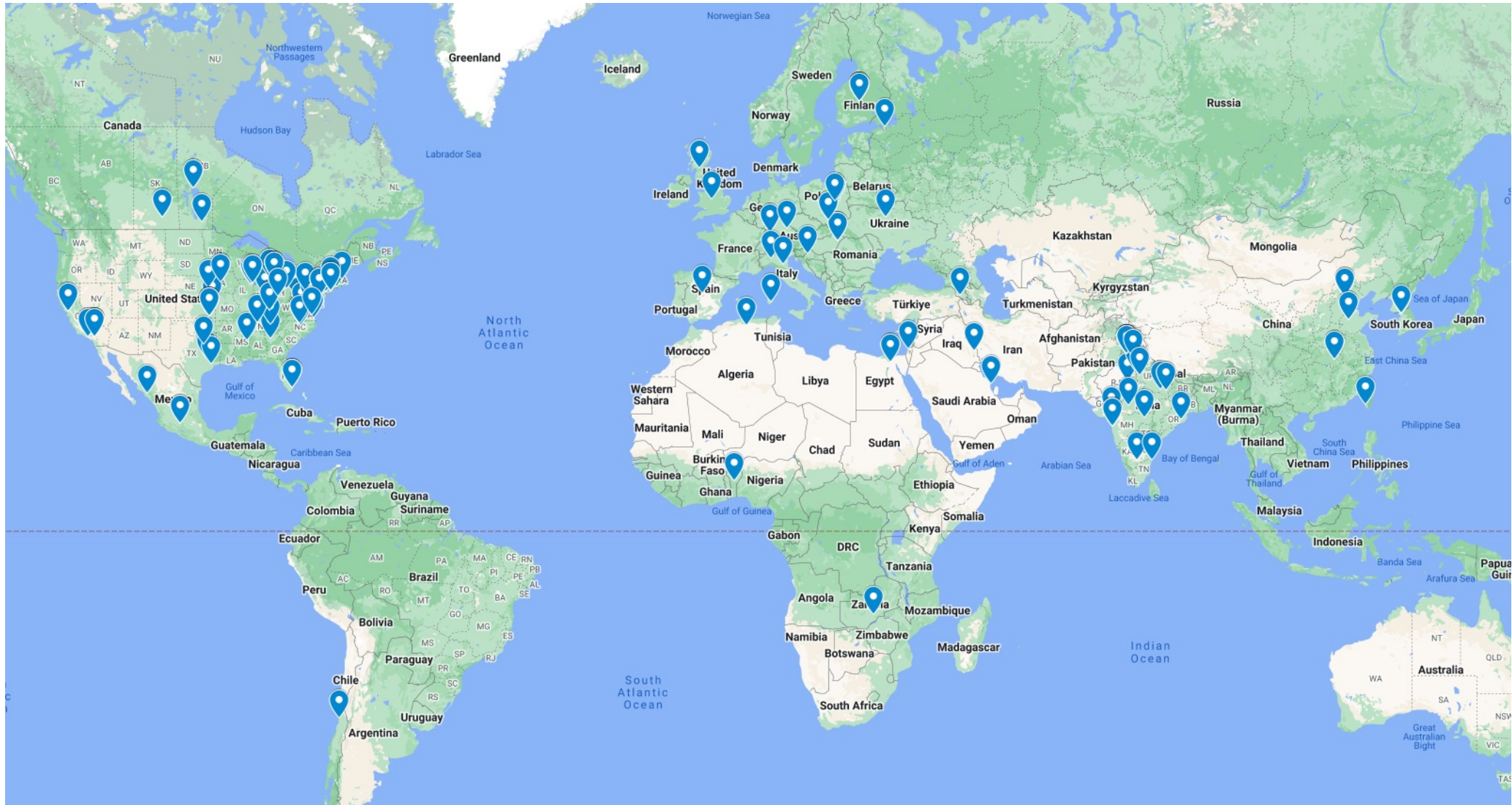
Setup jointly by Stony Brook University & BNL in 2017 with generous support from the **Simons Foundation and NY State** to promote the US Electron Ion Collider.

All our resources spent supporting and developing the science case for the EIC by:

- Supporting [early career scientists](#) (postdocs – local and remote/joint)
 - Helping assistant professors in early stages in their careers
 - Opportunities always open, visit our web pages to find more information
- 7-12 EICUG community driven and proposed [workshops](#) annually on various scientific and technical aspects of the EIC
- EIC Science related [Summer School since 2019 – 2023](#) (at Stony Brook and now beyond)
- Help organize [national, international meetings](#) and discussions related to the EIC science
- Bi-Monthly [physics seminar series](#) (alternate Thursday 4:00PM EDT, accessible by zoom)

CFNS EIC Summer School 2019-2023 Attendee Institutions

~180 students from 26 countries have attended our Summer Schools



CFNS-CTEQ Summer School 2023

4th in the CFNS summer School Series; 1st co-organized with [CTEQ](#)

40 students admitted – fully supported by CFNS (room and board)

Highlights: Duration 2 weeks; Daily: 3 lectures, 1 tutorial, lots of time for discussions; informal evening discussion sessions covering intersection of nuclear and particle physics, and career-related discussions

Local Organizers:

Ross Corliss (SBU), Socorro Delquaglio (SBU), Abhay Deshpande (CFNS), Prakhar Garg (Yale), Wenliang Li (SBU), Fred Olness (SMU), Alexei Prokudin (PSU Berks), Zack Sullivan (IIT)

Topics Covered in 2023

- Collinear QCD, Spin Physics at the EIC
- EIC and connections to Heavy Ion Physics
- Effective theories and Higgs
- 3D structure of nucleon at the EIC: QCD, SCET, Jets, Resummation, Spin
- Small x Physics and BFKL
- Lattice QCD and the EIC
- EIC Physics: experimental investigations
- Electron and hadron beam Polarimetry
- Machine learning and artificial intelligence
- Detector technologies and ePIC detector
- EIC : Accelerator science
- Monte Carlo Tutorials for EIC/ePIC

Through one-on-one informal conversations and interactions – Career advise, getting to know the students
Weekend and evening events: Visits to NY City, Stony Brook barbeque and visits to local beaches

CFNS –CTEQ School lecturers 2023



Oleg Eyser (BNL)



George Sterman (SBU)



Anna Stasto (PSU)



Ciprian Gal (JLab)



Ernst Sichtermann (LBL)



Sally Dawson
(BNL)



Iain Stewart (MIT)



Raju Venugopalan
(BNL)



Huey-Wen Lin (MSU)



Timothy Hobbs (ANL)



Wouter Deconinck
(UManitoba)



Todd Satogata (JLab)



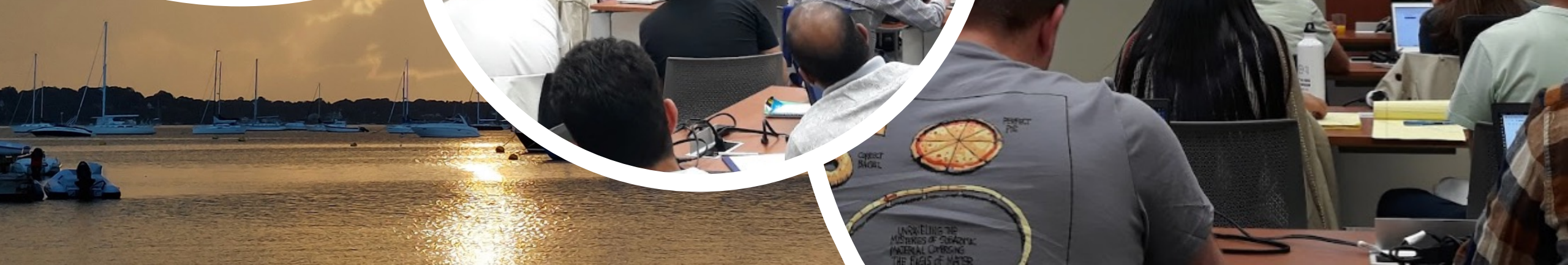
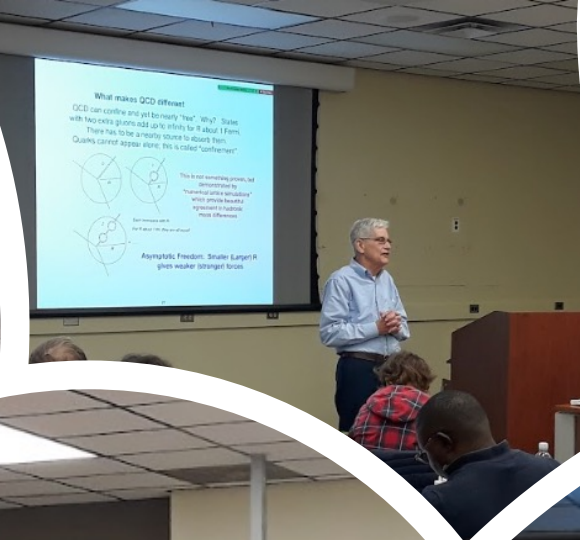
Vladimir Korepin
(SBU)



John Lajoie (ISU)

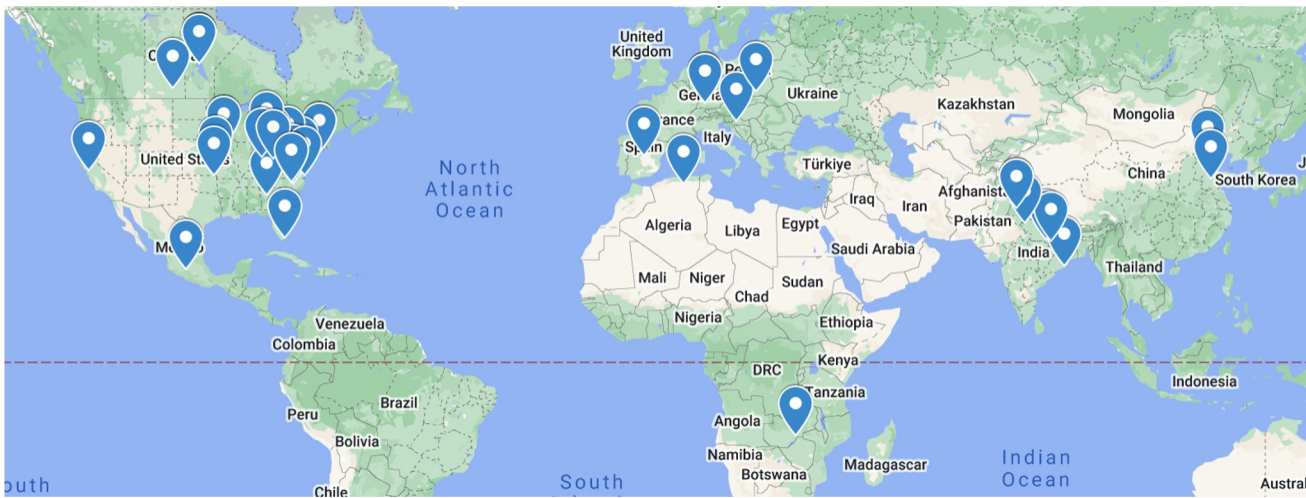


Thomas Britton (JLab)



CFNS-CTEQ School 2023





2023 CFNS CTEQ School

9 Countries

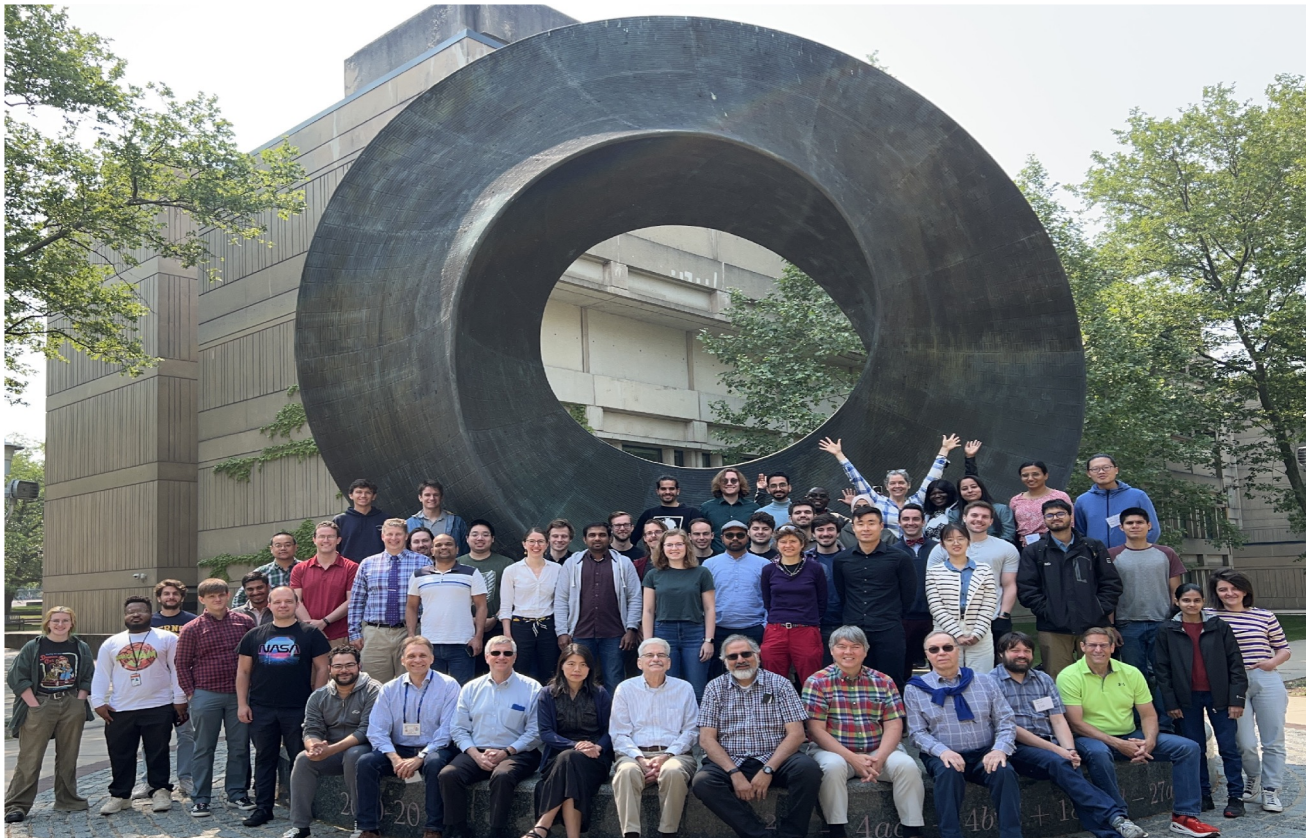
40 students (10 female)

Lectures & videos are [here](#)

[A video about 2023 School](#)

Made by N. Magdy –

A student in the School



Build upon the success of CFNS Summer School focused on the EIC and lessons learnt

- International effort needed to promote EIC Science amongst the next generation
- Instead of bringing students all the time to CFNS/Stony Brook, why not go to various places? (Avoids difficult VISA issues and potentially will reach more students).
- We (@CFNS) hope to help initiate, collaborate and support EIC related summer Schools in Africa, Asia, Europe, South America
- Preliminary discussions (over the past year) resulted in two concrete events:
 - 1st European Summer School on EIC – June 18-22, 2023 Avione Resort near U. of Calabria, Italy
 - A School is being planned at the Institute of Theoretical Physics in Bangalore, India (Jan-Feb 2024) (Abhay Deshpande, Bedanga Mohanty, [Asmita Mukherjee](#), Marco Radici) – This could evolve in to a Regional EIC School for ASIA (China, India, Japan, South Korea, Taiwan,...)
- Anyone interested in joining/helping with this effort, please contact me or EICUG Steering Group (Marco R). Any advice, suggestions and help – very welcome.