QCD@LHC25: Abstract

The QCD@LHC conference series is a premier annual event in high-energy physics, focusing on the study of Quantum Chromodynamics (QCD) in the context of the Large Hadron Collider (LHC). Bringing together theorists and experimentalists since 2010, this conference plays a crucial role in advancing our understanding of strong interactions, precision calculations, jet physics, and hadronic structure, which are central to interpreting results from the LHC and future collider experiments. For the first time, this year's conference will also include contributions and discussions centered around the Electron-Ion Collider (EIC), the US nuclear community flagship project under construction at Brookhaven National Laboratory (BNL).

Stony Brook University has a strong community engaged in theoretical and experimental aspects of collider physics. The conference is being co-organized by members of the C.N. Yang Institute for Theoretical Physics (YITP), the ATLAS experiment group, the theory nuclear group and the Center for Frontiers in Nuclear Science (CFNS); faculty members, postdoctoral researchers and graduate students are expected to attend the conference. Additionally, members of BNL experimental and theory groups are co-organizers of the conference, further enhancing its impact and reach. I am a co-chair of the local organizing committee together with a representative from BNL.

The target audience for QCD@LHC25 includes experimental and theoretical physicists working on the LHC experiments and future EIC, as well as experts in computational techniques, precision QCD calculations, jet substructure, and Standard Model phenomenology. The conference typically attracts 100–150 participants from leading universities, laboratories, and research centers worldwide. Attendees range from senior scientists to early-career researchers, fostering collaboration and knowledge exchange across experience levels.

Potential invited speakers will include prominent researchers in the field, such as:

- Experts in QCD theory: Bernhard Mistlberger (SLAC), Fabio Maltoni (Louvain University), Ayres Freitas (Pittsburgh University), Sven-Olaf Moch (Universitat Hamburg), Thomas Gehrmann (Zurich University), Jesse Thaler (MIT)
- Scientific analysis coordinators from the main LHC experiments
- Physicists responsible for program of EIC: Christine Aidala (Michigan University), John Lajoie (Iowa State University), Jian-Wei Qiu (Uppsala University), Zhong-Bo Kang (UCLA)