Application of CNS-Tokyo for ePIC

- Center for Nuclear Study, Graduate School of Science, the University of Tokyo

  - Focusing on nuclear physics using heavy ion beams from low energies at RIBF in RIKEN to high energies at BNL/CERN.

  - 5 groups, 8 staff members, 9 Postdocs, 4 technical staff, ~10 students

- Quark group in CNS will join ePIC.

  - Team leader: Taku Gunji (Associate Professor, 2017-)

  - Team composition: 1 special assistant professor, 4 PhD students, 1 master student

  - Group has a lot of activities in PHENIX (past) and ALICE (now).

    - RICH in PHENIX, TRD and TPC in ALICE, Run coordinator in ALICE, Physics data analysis (photons, dielectrons, heavy-flavors) for QGP studies

- Research interests at ePIC:

  - Gluon saturation, Energy loss and propagation in cold nuclear matter, Energy-momentum tensor and quark confinement and origin of mass, exotic hadrons, color transparencies

- Current plans for the contributions

  - Streaming readout (SRO) DAQ and online data processing using hardware acceleration

    - Development and benchmarking of online data processing via FPGA (High level synthesis) and GPUs (ALICE experience), Application of ML/AI

    - Collaboration with "SPADI-Alliance" in Japan (aiming at realizing free streaming DAQ in Japan. ~100 people from nuclear physics)

  - support other Japanese contributions such as TOF and ZDC R&D and construction.