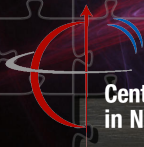


# Software Consortium EOI: SBU group

## A DAQ perspective

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September 2020



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**Stony Brook  
University**



**RBRC**  
RIKEN BNL Research Center

# Q1: Requirements

What software needs for EIC software would you like to highlight now, in a few years, and for the completion of the EIC project?

Now:

- ▶ DAQ / electronics aware simulation (pileup, rates, trigger)
- ▶ Background / RC aware simulation
- ▶ Prototype of DAQ to analysis chain (test beams etc)

Few years:

- ▶ More sophisticated analysis chain.
- ▶ Converge to “standard solution”.
- ▶ (Watch sPHENIX, CLAS12 closely)

@ beam:

- ▶ Fully integrated DAQ / Analysis

## Q2: Technologies and Techniques

What software technologies and techniques should be considered for the EIC?

- ▶ DAQ will like not define an “event”. Software needs to support this on the analysis side.
- ▶ DAQ and analysis closely coupled. Need to be aware of storage conditions/ HPC env.
- ▶ Column oriented vs. row oriented data format?
- ▶ HPC, accelerator suitable
- ▶ Integrate MC and analysis

Some trade-offs:

- ▶ Seamless transition beginner→expert.
- ▶ Allow multiple languages. Or pick a safer one? Rust?
- ▶ Pluggable, modularized.
- ▶ But no black boxes.

## Q3: Resources

### My group:

- ▶ Ethan Cline (postdoc)
- ▶ Me (PI of eRD23 Streaming readout)
- ▶ 1-2 graduate students on non-EIC projects
- ▶ Army of undergraduates (i.e. “the future”)

### SBU/CFNS in general:

- ▶ Generally high interest in EIC, software and DAQ aspects.
- ▶ Large group of postdocs, students using MC software right now.
- ▶ CFNS can support workshops, students (also CS, EE), visitors, even postdocs.