EIC Software Meeting:

Welcome and Meeting Goals

Markus Diefenthaler

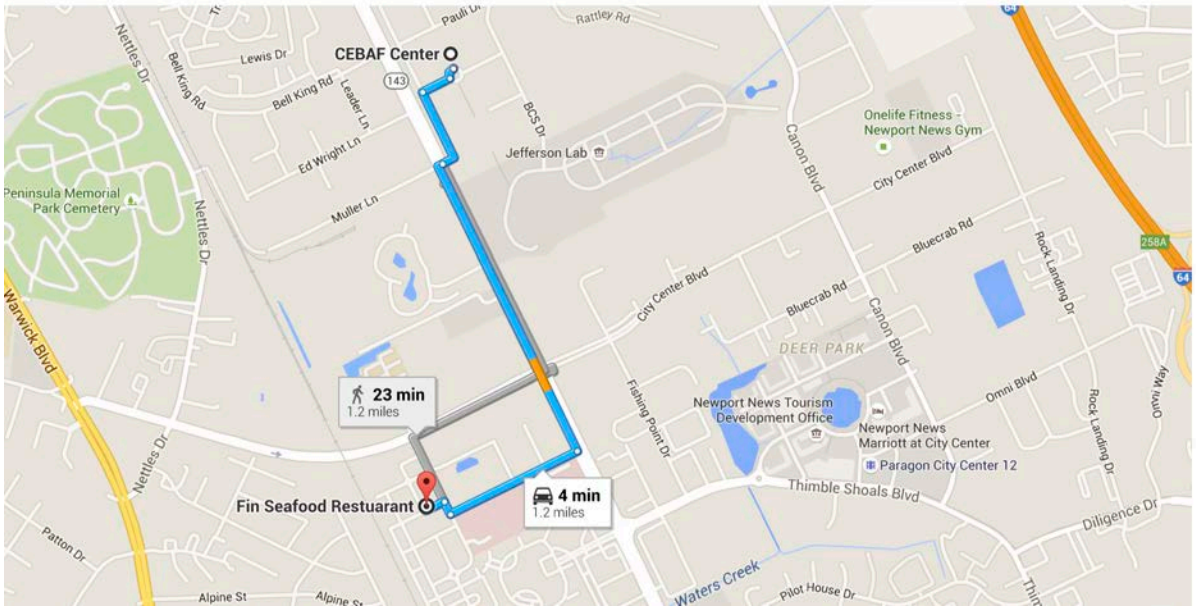
Welcome

- **Welcome to the first EIC Software Meeting:**
  - organized by Elke-Caroline Aschenauer (BNL) and Markus Diefenthaler (JLab)
  - delighted by feedback from BNL and JLab

- You are very welcome to join the **workshop dinner** at **6:00 p.m.** at

Fin Seafood (3150 William Styron Square N, Newport News)

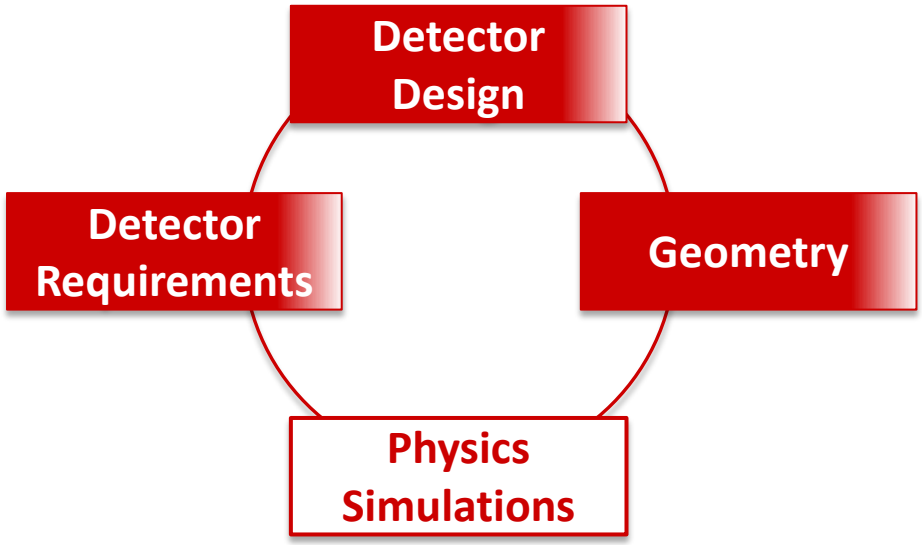
CEBAF Center, 12000 Jefferson Ave to Fin Seafood Restuarant Drive 1.2 miles, 4 min



Development of the EIC software

2015

Detector Simulations, Physics Simulations



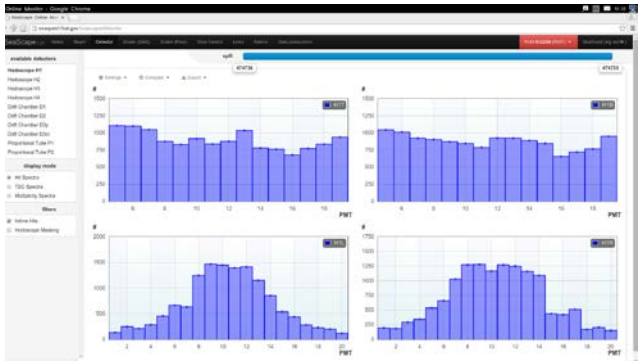
2025

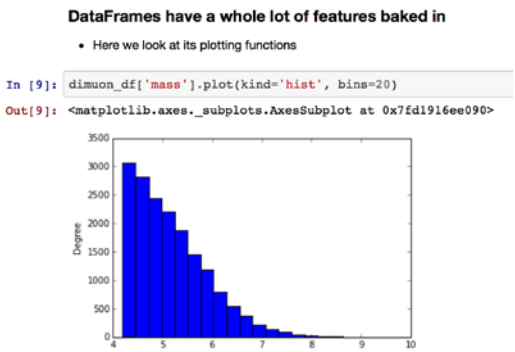
Offline and online software framework

One decade of software development

Software R&D as part of (Detector) R&D

- Selected software trends we should follow:
  - **web applications**, e.g. SeaQuest's SeaScape or iPython based analysis:





  - **Internet of Things**, i.e. device interconnectedness
  - **Big Data**, a possible paradigm shift for NP / HEP :
    - Big Data is not about size
    - Big Data is about the ability to quickly analyze large amounts of data. i.e.
    - have all raw and processed data permanently stored in a scaleable random access storage with fast, efficient data indexing (lookup) capabilities
    - resulting in a) more efficient use of computational resources (CPU) and b) fast data (re)processing and analysis
  - related to Big Data: **R** emerging as the leader in statistical languages for Big Data, worth looking into (cooperate with other fields / industry)
  - related to Big Data: **NoSQL** (non-relational) databases: more flexible and better scaleable than traditional, relational databases (e.g., MySQL)

Goals of the EIC Software Meeting

- software R&D plays key role in the design of the EIC

- **current software focus:** detector and physics simulations
  - Monte Carlo generators for the EIC physics program
  - tools for detector simulations
  - tracking software
  - tools for detector development

- **goal of the EIC software meetings:**
  - review the software status
  - identify interfaces between the BNL and JLab software
  - chance for an active collaboration (tbd)