

# Institute for Research and Innovation in Software for High Energy Physics (IRIS-HEP)

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<http://iris-hep.org> (Under Construction!)

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## Background: Community White Paper and S2I2-HEP

- Like other agencies, the US NSF has recognized the scale of the software and computing challenges of the HL-LHC
- NSF provided a small “planning grant” (S2I2-HEP) in 2016 to understand what R&D is needed to meet this challenge and how the U.S. university community could contribute
- *Reminder: NSF primarily funds the U.S universities*
- PIs: Elmer/Princeton/CMS, Neubauer/UIUC/ATLAS, Sokoloff/Cincinnati/LHCb, but with “participant funds” to help bring people together to prepare a roadmap
- However a plan for U.S. universities in isolation is less valuable unless part of a more global vision
- S2I2-HEP which us to work with the HEP Software Foundation (HSF) on the Community White Paper (CWP) roadmap process and document [See talk by M.Jouvin in previous meeting]

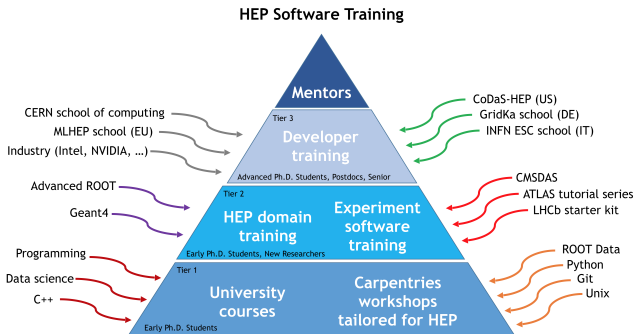
## Background: Community White Paper and S2I2-HEP

- The CWP was clearly a successful community process, which produced a clear roadmap of R&D in a number of strategic areas.
- The process also demonstrated the desire of the community to work together and demonstrated the value of the HSF to build these collaborations
- Building on this, we also submitted a strategic plan to NSF from the S2I2-HEP with a subset of areas where the U.S. university community could contribute - <http://s2i2-hep.org>
- Focused not only on cost/resources/technology issues, but also opportunities for increased physics reach and sustainability
- This led to a proposal this past spring for the “Institute for Research and Innovation in Software for High Energy Physics (IRIS-HEP)”
- IRIS-HEP was funded on 1 Sept, 2018

# IRIS-HEP Overview

- PI: P.Elmer (Princeton), co-PIs: G.Watts (U.Washington), B.Bockelman (U.Nebraska); 17 participating universities
- Collaborators on ATLAS, CMS and LHCb plus Computer Science
- \$25M grant, \$5M/year for 5 years, ~30FTE
- R&D areas:
  - Innovative Algorithms (Reco/Trigger, including ML)
  - Analysis Systems
  - Data Organization, Management and Access (DOMA)
  - Dedicated integration effort (Scalable Systems Laboratory)
- Also includes some OSG common services needed for the LHC, as part of reorganization into dedicated “OSG-Core” and domain-specific OSG projects
- Training and Workforce Development

# Integrated Training Vision



NSF funded also FIRST-HEP - <http://first-hep.org/about/>

# IRIS-HEP and HL-LHC R&D Collaboration

- The IRIS-HEP goals include continued community engagement
- This will build on initial collaborations developed as part of the HSF CWP process
- Continuity from our S2I2-HEP efforts as part of the CWP, e.g. support for CWP/S2I2-HEP-style workshops
- “Blueprint” meetings to build common vision between projects
- NSF has stepped forward with HL-LHC S&C R&D funds through IRIS-HEP
- As other efforts (hopefully) come forward, we will be looking for ways to build synergistic collaborations through entities like the HSF