

# The LArSoft project

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FIFE workshop  
4 June 2013

# What is LArSoft?

- Joint reconstruction project for LAr TPC experiments at Fermilab
  - ArgoNeut, LBNE, MicroBooNE, LArIAT
- Common detector technology
  - Drives commonality in the methods, algorithms, and workflows needed.
  - Assumes “sufficient” similarity in geometry to make general algorithms
- Leverage effort across experiments and within SCD
- The cost is that it requires writing more “generic” software
  - Doing this naturally develops a toolkit (ideally)
  - Can build a variety of reconstruction algorithms from common set of tools

# What is LArSoft?

- Built around the Art analysis framework
  - Not a formal “framework” in itself, but implements a common workflow
- LArSoft contains
  - common input and output data structures
  - utilities and tools
  - reconstruction algorithms (which are generally experiment agnostic, even if they are applicable only to one)
  - test software
  - tools for generating a generic geometry description
  - reconstruction workflow
- Experiments maintain
  - experiment-specific geometry, electronic response simulation, digitization simulation, etc.

# LArSoft and FIFE

- LArSoft is not a part of FIFE, but...
- ...FIFE is about
  - exploiting commonalities between needs of various experiments
  - leveraging effort within SCDto provide computing solutions to IF experiments
- More generally, SCD concerned with supporting critical computing infrastructure
- LArSoft considered a case of “common infrastructure”
  - is consistent with same SCD strategic objects that spawned FIFE

# SCD support for LArSoft

- Computing project support from SCD
  - Project leadership
    - Coordinating with stakeholders on objectives, priorities, schedules
    - Provide technical leadership
  - Project management
    - Tracking progress of the project against defined objectives
  - Code management and distribution
    - Provide stable development environment
    - Software build and distribution infrastructure
      - Attempting to use tools that are/could be used across IF
    - Release management
  - Technical assistance and guidance
    - Guide and assist with adopting designs and implementations based on best practices used at Fermilab and within HEP