

# Analysis and Simulation Software

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## Purpose, Description

This effort includes development of all software needed to analyze GlueX data, and includes:

- detector calibration
- full event reconstruction
- simulation
- partial wave analysis
- creation of data summary files
- level 3 trigger algorithm

## Current Status, R&D issues

GlueX has developed a preliminary simulation suitable for experiment design and acceptance studies, and has begun work on an offline analysis framework and on the experiment data model. GlueX is also a leader in the world-wide effort to develop new PWA tools and algorithms.

## Manpower, Further R&D, Production

Most of the GlueX analysis and simulation algorithms and software remains to be developed. This is a very large effort that has already begun, and it will continue for years after experiment startup. The work will be done by the GlueX collaboration, and a large fraction of GlueX members are expected to contribute.

Preliminary calibration software must be ready about a year before startup, and the final system must be ready by the time the experiment begins.

A full-featured event simulation, analysis framework, and preliminary reconstruction and analysis software needs to be available two to four years before the start of data taking. Final reconstruction and analysis software needs to be ready about six months before data taking for GlueX to succeed in publishing preliminary results within a year of startup.

The production level 3 trigger algorithm is needed about a year after startup, as initial data taking will be at a reduced rate, but a prototype must be available about one year before startup for testing.