GlueX Physics Meeting

International Physics Analysis Workshop

February 11 and 12, 2006
(Saturday and Sunday)
Carnegie Mellon University
Pittsburgh, PA 15213

The purpose of this meeting is look at physics relevant to the GlueX Experiment and the analysis necessary to extract that physics from the data. This will be accomplished by covering several broad topics.
The attendance of the meeting is open to all interested parties.

The analysis tools used to extract physics from the data. What is the state of the art? What is actually extracted? What are the underlying model assumptions? We currently have a recent coupled channel analysis on E852 3pi data and an ongoing photo production analysis at Carnegie Mellon focusing on Baryons, but dealing with s- t- and u- channel processes in one coherent picture.

The phenomenology associated with the PWA tools. What is this phenomenology? A lot of this was developed in the 70s and 80s and is described in language that may no longer be in vogue. Can the problem be formulated in more modern language? Is this phenomenology the best way to attack things.

The phenomenology of exotic hadrons. How do we connect this to the physics coming out of the data? What are the most compelling signals for hybrids? Mapping of a nonet? Multiple nonets? Mapping decay modes? Mixing of non-exotic hybrids with normal mesons? What is the priority list on physics goals?

Lattice QCD and its impact on our understanding of exotic hadrons. Lattice has made and continues to make tremendous advances in its ability to explain observed phenomena. In addition, new lattice computers are currently being built up. What are the prospects of carrying out lattice calculations related to hybrid mesons. This would include good mass predictions as well as some initial work on decays. What resources would be needed for these calculations?

The primary outcome of the meeting should be a white paper that discusses the previous topics, how they are interrelated, and what work still needs to be done to assure a successful outcome of the program. A possible question driving this white paper could be: *What is the path forward (on all fronts) to make sure that the results from GlueX can be understood and the interpretation of these results has its largest impact?* In order to have a draft of this white paper shortly after the meeting, it will be necessary to begin sections of the material before the meeting.

A second outcome will be the start of a *Physics Book* that would collect relevant theory works, describe the physics and serve as a tutorial on getting started with GlueX physics. The ultimate book is clearly a much longer term goal, but this meeting will serve a starting point for putting this book together.