Memorandum of Understanding
between the GlueX Collaboration,
Jefferson Lab
and The Catholic University of America

May 26, 2004
Draft Version 2

1 Introduction

This Memorandum of Understanding (MOU) outlines the activities and responsibilities of the The Catholic University of America (CUA) Experimental Nuclear Physics Group within the Jefferson Lab (JLab) GlueX collaboration. It describes the commitments of all three parties to the successful completion of the GlueX experiment and is subject to regular review and updating by all three parties. The manpower commitment and deliverables described in this document are contingent on continued funding of the CUA group.

The goal of the GlueX experiment is a mapping of the spectrum of gluonic excitations with the ultimate objective being a quantitative understanding of the nature of confinement in QCD. To achieve this goal a hermetic detector, the GlueX spectrometer, optimized for amplitude analysis, will be constructed in a new experimental hall (HALL D). A tagger facility will produce 9 *GeV* linearly polarized photons via coherent bremsstrahlung radiation of 12 *GeV* electrons through a diamond wafer. To achieve 12 *GeV* photons CEBAF will be upgraded to 12 *GeV* with additional cryomodules, modified arcs and an additional arc. Critical Decision 0 (CD-0) for the upgrade and GlueX was awarded by the Department of Energy (DOE) in April, 2004. The GlueX collaboration was formed in 1998. The fourth and most recent version of the GlueX Design Report was issued in 2002. The project has been reviewed externally and by the JLab Program Advisory Committee. The GlueX management has been in place since 2000 with a Spokesman, Deputy-spokesman, HALL D group leader and an elected Collaboration Board.

This MOU does not constitute a contractual obligation on the part of any collaborating GlueX institution or JLab. No contractual obligations shall arise except pursuant to appropriate written authorizations by each party. All foregoing work is subject to the appropriate written contractual agreement of the parties.

2 Institutional Commitments to GlueX

2.1 Commitments to GlueX R&D

By the end of 2005, the CUA group, together with the Glasgow group, will complete work on design and technical specifications of the tagging magnet spectrometer and the associated vacuum system so that a bid package for the system can be prepared.

The CUAgroup will be the liasion for coordination with the Hall-D scientific and engineering staff for the installation and integration of the meagnet and vacuum system into the photon beam line.

The CUA will begin design and prototyping of the photon polarimeter.

2.2 Hardware Deliverables for GlueX

When the spectrometer magnet is delivered to JLab we will perform the field maps necessary to confirm that the magnet meets specifications and to assure that the energy of tagged photons is accurately determined.

Upon completion of the final design and prototyping photon polarimeter, the The Catholic University of America group will construct the detector components for this system. The detector system will then be delivered and installed in the Hall-D tagger building.

2.3 Support for Running The GlueX Experiment

The CUA group will assure that the magnet and monitoring systems are maintained once these systems are installed. We will serve as experts on call for various parts of the photon beam facility as well as performing normal shift

2.4 Support for Analysis of GlueX Data

In addition to assisting with the analysis of the experimental data, the CUA group will develop and maintain software necessary for monitoring the operation of the tagger.

2.5 Collaboration Responsibilities

The CUA group will maintain a commitment to the management and operation of the Collaboration, much in the manner we have done in previous collaborations.

3 Funding and Infrastructure

3.1 The Catholic University of America

The CUA group will provide funds associated with support of personnel and travel to carry out the tasks outlined in this MOU.

The CUA group will request funding from the National Science Foundation and from Jefferson Lab to carry out work beyond the scope covered by this MOU.

The CUA group controls lab space necessary to both build hardware and perform tests of the resulting equipment. This space exists and is assigned to the CUA group involved in GlueX. In addition, the CUA group has or will obtain sufficient electronics, test equipment and infrastructure to carry out all needed tests on both the prototype and the final detector package.

The CUA group will provide written time lines for the completion of various phases of the project and written reports on the outcome of each of these various phases.

3.2 The GlueX Collaboration

3.3 Jefferson Lab

- JLab will retain ownership of all deliverables as specified under individual contracts and MOUs.

- JLab is responsible for all engineering aspects of GlueX and all aspects of the detector integration that require legal and certified engineer approval.

- JLab assumes all legal liabilities related to CUA provided and installed equipment while located on JLab property.

- JLab will provide reasonable assistance to the CUA group to assure smooth flow of information regarding DOE procedures and protocols as they affect the funding of the work agreed between JLab and The Catholic University of America.

- JLab will provide physical space to CUA personnel and for their equipment to facilitate their work on GlueX. The CUA group will convey such requirements to JLab with reasonable advance notice in the spirit of good relations and sound planning.

- Official contact between the CUA group and JLab will be through the HALL D project management office and its JLab appointed staff.

4 Personal

1. The contact person for the The Catholic University of America group is Daniel I. Sober.
2. The following personnel are included in the CUA GlueX group:

Person	**Positions**	**Percent of Research Effort**
(To be determined)	Post Doc	35%
Hall Crannell	Professor Emeritus	35%
Franz Klein	Assistant Professor	35%
James O'Brien	Research Profeesor	75%
Daniel Sober	Professor	35%
(To be determined)	Graduate Student	20%
Paul Branch	Technician	10%

The percentages refer to the approximate percentage of research time to be spent by the person on all GlueX activities during FY2004–FY2006 time period. These commitments will be updated as the project matures.

5 Special Considerations

1 The GlueX collaboration will have final responsibility for the acceptance of all deliverables and retains the right, to terminate or renegotiate this MOU if the technical requirements, performance, physical specifications, time schedules and costs cannot be met by the CUA group.

2 The GlueX collaboration retains the right to assign additional manpower and/or additional groups to this project if it is deemed that this is necessary for timely and within budget completion of the project.

3 The continuation of this agreement is dependent on the approval for continuing funding for all parties in the MOU.

4 This agreement may be amended as necessary.

5 The CUA group, the GlueX Collaboration management and the JLab management of GlueX agree to commit themselves on a collegial, open and effective working relationship for the benefit of the project.

SIGNATURE PAGE

________________________________	________________________________
Prof. Daniel I. Sober Contact Person The Catholic University of America	Date
________________________________	________________________________
Prof. Alex Dzierba Spokesperson GlueX Collaboration	Date
________________________________	________________________________
Dr. Elton Smith JLab HALL D Group Leader Jefferson Lab	Date