**SoLID Director’s Review**

**Charge to the Review committee – Draft**

**Introduction**

The Hall A SoLID experimental program consists of five experiments approved by the Jefferson Lab Program Advisory Committee: one on parity-violating deep inelastic scattering (E12-10-007), three on transverse-momentum dependent parton imaging (E12-10-006, E12-11-007, E12-11-108), and one on near-threshold J/Psi production (E12-12-006). It is projected as a major new thrust of the scientific program at Jefferson Lab. The experimental apparatus and the scope of the program is of scale similar to a complete hall program such as those in Hall B (CLAS12) and Hall D (GlueX).

In embarking on this program and as a precursor to discussing CD-0 for the project, we need to scrutinize all aspects of the experiment. In particular interactions with DOE in analogous discussions about other experiments have emphasized the need to understand the necessary R&D phase. The project has been asked to prepare material, which should include a Technical Proposal and presentations that will enable the review committee to address the charge outlined below.

**Charge**

1. Review the relevance of the physics program and the potential risks to the physics case. This should include:

1. The completeness and credibility of the discussion of the experimental reach, including statistical, systematic and theoretical uncertainties.
2. Ability to handle the desired luminosities and backgrounds including impacts on both the apparatus and beam line downstream of the target.
3. The implications for the relevance of the physics results in the context of possibly competing experiments at both JLab and internationally.

2. Review the viability of the approach used in the project with respect to the general experimental technique proposed for the approved physics program. This should include the evaluation of the credible plans for:

1. Any R&D required to meet the technical challenges of the experiment.
2. Proposed magnet concept and choice, including magnet configuration modifications (if any), magnet cool down and infrastructure requirements.
3. Proposed detector concept and associated electronics and data acquisition.
4. Beam line design, including collimation and shielding.
5. Cryogenic and polarized target system concepts and integration.
6. Beam polarimetry requirements.

3. Review the understanding, completeness, and credibility of the resources estimated in both manpower and cost. In addition to the apparatus, this should include:

1. Experience, expertise and quantity of the scientific and technical manpower for the project.
2. Utilities (power, cabling, LCW, cryogenics) requirements for the project.
3. Requirements from Jefferson Lab on for instance engineering needs, electron beam, polarized source, and cryogenic and polarized targets.
4. General experiment installation and alignment issues, including potential interaction with other Hall A programs and operations.