Chinese Collaboration in SoLID

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Nucleon Transversity at 11 GeV Using a Polarized ^{3}He Target and SOLid in Hall A

Peking U., CalState-LA, CIAE, W&M, Duke, FIU, Hampton, Huangshan U., Cagliari U. and INFN, INFN-Bari and U. of Bari, INFN-Frascati, INFN-Pavia, Torino U. and INFN, JLab, JSI (Slovenia), Lanzhou U, LBNL, Longwood U, LANL, MIT, Miss. State, New Mexico, ODU, Penn State at Berks, Rutgers, Seoul Nat. U., St. Mary's, Syracuse, Tel aviv, Temple, Tsinghua U, UConn, Glasgow, UIUC, Kentucky, Maryland, UMass, New Hampshire, USTC, UVa

and the Hall A Collaboration

Strong theory support, Over 130 collaborators, 40 institutions, 8 countries, strong overlap with PVDIS Collaboration

New since PAC35

Shangdong University, Huazhong Univ. of Science and Technology, Inst. of Modern Physics of CAS

Funding opportunities in China

- National Science foundation of China (NSFC)
  - Similar in many ways to NSF, except it does not have MRI type of program
  - Excellent support individual PIs, particularly young PIs based on science projects (data analysis, travel, student support, etc. no support for hardware)
  - Major international collaborations 2-3 M (RMB) over a period of 3-4 years, annual competition, March deadline
  - In the past joined force with other funding agencies in China to support large scale project such as the RHIC STAR detector upgrade (TOF)

Funding Opportunities (continues)

- Ministry of Science and Technology (MOST)
  - Counterpart in US: DOE
  - Support large scale science projects over a typical funding period of 5 years: total ~10M (RMB), the 973 plan
    - Each Nov, call for projects
    - Following Jan, published a list of projects that MOST is interested in receiving proposals
    - Sometime in March, proposals are due
    - MOST are most interested in proposals building large apparatus/new facilities in China to do first-rate science
    - CIAE submitted a pre-proposal last November for the SoLID project (GEM detector)
    - CIAE group (Prof. Xiaomei Li) got an internal award for GEM R&D

Funding Opportunities (continues)

- Chinese Academy of Sciences
  - Have many institutes and a couple of universities
    - Inst of High Energy Physics
    - Institute of Modern Physics
    - University of Science and Technology
    - Graduate university of CAS
  - Within CAS, it has different programs to support different types of research
    - CAS and DOE signed MOU including Nucl. Physics, particularly 12-GeV upgrade
    - CAS is very supportive of the SoLID project and the participation of its scientists
    - CAS is interested in leading the GEM detector construction project within China for the SoLID program (USTC, IMP)
    - USTC group (Prof. Zhengguo Zhao) has fund to start R&D on GEM

Funding opportunities (continues)

- University-wide program competition
  - In China, Universities receive a large amount of resources from the government, Ministry of education
  - Some of our collaborators already received significant amount of internal start-up funds for the project (Prof. Zhigang Xiao at Tsinghua)
  - Colleagues are interested in pursuing some support this way towards the overall project, for example at PKU

Strategy

- Form a strong collaboration in China
- Organize annual China-US hadron physics workshop, 3rd one will be in Weihai, Shangdong, China, August 8-10, 2011 (in fact it should be 4th one overall in its series)
- Encourage Chinese physicists to pursue their own physics interests at JLab
- Communications with NSFC, CAS and MOST
- Goal is to have strong joint support from CAS, NSFC and MOST
  - 973 application this March, jointly lead by Prof. Haihong Xia(CIAE) and Prof. Zhengguo Zhao (USTC), with 8 institutions participating
  - NSFC major international collaboration award application by PKU, Tsinghua and Graduate school of CAS will be submitted in March 2011, led by Prof. B.-Q. Ma
  - Support from CAS: USTC (mostly) and IMP

Responsibilities

- CO_2 gas Cerenkov detector: Temple U.
- Heavy Gas Cerenkov: Temple U.
- ECal: W&M, UMass, JLab, Rutgers, Syracuse
- GEM detectors:UVa, Miss State, W&M, Chinese Collaboration (CIAE, Huangshan U, PKU, LZU, Tsinghua, USTC), UKY, Korean Collaboration (Seoul National U)
- Scintillator: Chinese Cobllaboration, Duke
- MRPC: Tsinghua Univ., Duke
- Electronics: JLab
- DAQ: LANL, UVa and JLab
- Magnet: JLab and UMass
- Simulation: JLab and Duke

Blue: common with PVDIS

Black: part in common with PVDIS

Red: This experiment only

Groups have experience with GEM already in China: IMP, Lanzhou U, Tsinghua U

Groups interested in GEM: USTC/Huangshan, Lanzhou U, CIAE, Shangdong U, Tsinghua U, PKU, and IMP

USTC: detectors, electronics and readout

Status on GEM

- Prototypes for testing
  - USTC (Wenbiao Yan, Z-G. Zhao)
  - Tsinghua (Zhigang Xiao)
- USTC: readout electronics and detector hardware
- CIAE: interest in developing and fabrication of GEM foils, and detector hardware
- Tsinghua, Lanzhou U: detector hardware

Collaboration

- USTC physicists (Wenbo Yan and Zhengguo Zhao) short-term visit JLab and UVa (March, April), and then Wenbo Yan visit Duke/JLab August-Oct.
- Tsinghua Univ. (Zhigang Xiao visit Duke in Feb., possibly JLab and Uva also)
- A student from CIAE will visit JLab/UVa to work on the GEM for two months (March-April)
- Huangshan U. (Hai-jiang Lu) visit JLab, May-June.
- Possibly to have a prototype GEM be sent to China to do test.