

## ROBERT DEAN SCHAMBERGER JR.

### (A) CURRICULUM VITAE

**DATE OF BIRTH:** June 28, 1948

**ADDRESS:** Department of Physics  
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**EDUCATION:** B.S., SUNY at Stony Brook (1970)  
Ph.D. SUNY at Stony Brook (1976)

**EMPLOYMENT:** Research Faculty (2013 – )  
Technical Director of the High Energy Physics Laboratories (1993 – )  
Principal Research Scientist, SUNY Stony Brook (1988 – 1993)  
Senior Staff Scientist, SUNY Stony Brook (1985 – 1988)  
Senior Research Associate, SUNY Stony Brook (1981 – 1985 )  
Research Associate, SUNY Stony Brook (1976 – 1981)

**OTHER:** Co-Principal Investigator, National Science Foundation (1980 – 2017)

### (B) WORK EXPERIENCE

1. CUSB Experiment(1981-1990): Helped design and build the HV control system for the PMTs, the ADC readout system for the calorimeter and the TDC readout system for the tracking chambers under the supervision of Paolo Franzini. Was responsible for the maintenance of the readout systems for the life of the experiment. Developed an automatic run control system to allow safe and reliable data taking with only "on-call" people from midnight until 8AM. I was the run manager for the experiment for the last 6 years of data taking.
2. D0 Experiment (1986-2011): Helped design and build the entire readout system for the LAr detector under the supervision of Paolo Franzini. I also helped with the design and testing of the overall grounding for the experiment with Paolo Franzini and Marvin Johnson. The calorimeter ADC system was my design, and was used by the LAr detector for the full lifetime of the experiment (from original test beam runs until the Tevatron was shut down). The ADC system was also used by the Run 1 Muon readout system. I ran the investigation which identified and solved a noise pickup which was introduced during the upgrade from run 1 electronics to the new

run 2 readout system. I also ran the investigation to identify and fix a luminosity dependant noise that started about half way through run 2 which created "noise bursts" at high luminosity. With the help of a Stony Brook engineer I designed the base-line-subtraction hardware for run 2 of the experiment for the calorimeter, which sampled the (base line corrected) pre amp signal on every bunch crossing and held it until the L1 accept arrived and then presented it to the ADC system for digitization and readout. The system contained enough buffering that we added no dead time to the detector running, except when some hardware failed (typically the cooling system). I ran the Calorimeter operations group for the last 6 year of the experiment. All the run 2 LAr readout electronics was maintained by Stony Brook under my supervision.

3. Atlas Experiment (2012-present): I started working on Atlas after the first run had begin, but was quickly added to the LAr electronics maintenance group. When the PhaseI upgrade was started Stony Brook started working on the LAr back end trigger processing. Along with an Engineer and some students and PostDocs we developed the ATCA carrier board that powers the modules that receive data from the front-end electronics and sends its calibrated data to the L1 trigger system. The carrier board also handles decoding the trigger information, creating a clean clock signal for the processor boards, sending monitoring and trigger data from the processor cards, and communicating with the ATCA shelf. After the Engineer retired I took over the task of fabricating and testing the boards to be used in Atlas. All the boards are now tested, shipped to CERN, and installed in the Atlas readout system. We are now in the process of designing and building hardware for the Atlas PhaseII upgrade expected to be installed in a few years. Again an engineer with some students and PostDocs will be involved in the project.
4. Physics and (recently)Astronomy Department (1991-present): After the CUSB experiment ended, I returned to Stony Brook and started helping the Department in maintaining its Ethernet connections, including a database of every computer and its location in case there is evidence that the machine is infected with Malware. I also supervised two HEP group staff members Kim Kwee Ng and Jack Steffens (and when Jack Steffens retired his replacement Dave Northacker). I also supervised the RF supported secretarial staff for the HEP group, first Joan Napolitano and then after she retired I supervised Tracy Hillenbrand and Gloria Chivillivas-Ramos. I was also a member of 4 search committees for 3 new members of the HEP support staff and one for the Physics Department Electronics Lab. In 1995 I became the Physics Department's official DOIT representative, where I am the first line of help for all the faculty, staff, and students with "computer" issues. That includes the installation of the University licensed Windows operating system and the MicroSoft Office software

(on University owned computers) as well as helping if "special" software is needed. I am also co-safety officer for the D-level of the Physics building. I helped setup and maintain the Physics department web page (along with Kim Kwee Ng) until last year when it was moved to University hardware and modern design.

**(C) PUBLICATIONS (> 1000 Publications with the CUSB, DØ , KLOE, and ATLAS Collaborations)**

**(C1) three publications related to building detectors:**

1. "CUSB-II: A High precision electromagnetic spectrometer," R. D. Schamberger *et al.* (the CUSB Collaboration), Nucl. Instrum. Meth. A **309**, 450 (1991).
2. "The DØ Detector," S. Abachi *et al.* (the DØ Collaboration). Nucl. Instrum. Meth. A338:185-253,1994.
3. "The Upgraded DØ Detector," V. M. Abazov *et al.*, (DØ Collaboration), Nucl. Instrum. Meth. A 565, 463, 2006.

**(C2) 5 OTHER PUBLICATIONS**

1. "E1 transitions from the  $\Upsilon''$  state and the fine structure of the  $\chi'_b$  states," M. Narain *et al.* (the CUSB Collaboration), Phys. Rev. Lett. **66**, 3113 (1991).
2. "Measurement of the  $B^*$  cross-section at  $\sqrt{s}=10.61$  GeV to 10.70 GeV," Q. W. Wu *et al.* (the CUSB Collaboration), Phys. Lett. B **273**, 177 (1991).
3. "Observation of the Top Quark," S. Abachi *et al.* (the DØ Collaboration). Phys. Rev. Lett. **74**, 2632 (1995).
4. "Measurement of the W boson mass," V. Abazov *et al.* (the DØ Collaboration). Phys. Rev. Lett. **103**, 141801 (2009).
5. "Observation of a new particle in the search for the Standard Model Higgs boson with the ATLAS detector at the LHC," G. Aad *et al.* (ATLAS Collaboration), Phys. Lett. B **716**, 1 (2012).