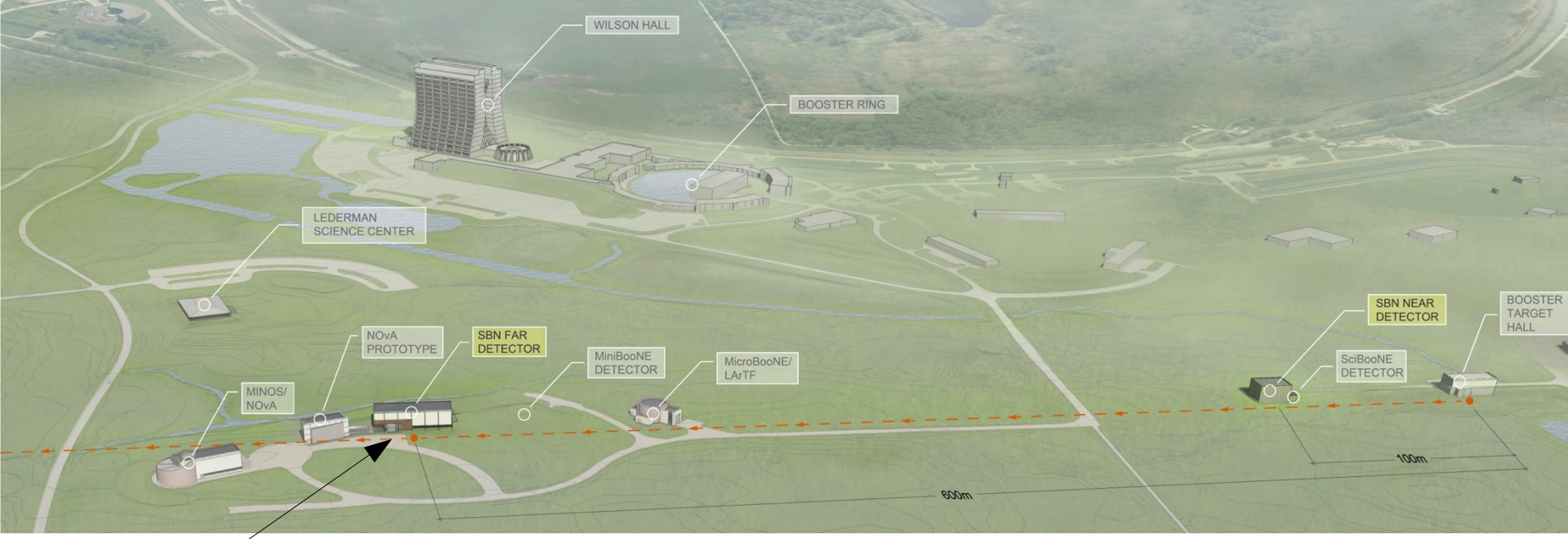


ICARUS:
University of Pittsburgh

V. Paolone

ICARUS Meeting

13-14 May 2018

General Group Introduction

- General interests (Neutrino Group: Dytman, Naples, Paolone):
  - The study of the fundamental properties of neutrinos (*i.e.* neutrino oscillations), and how they interact with matter.
  - Readout electronics, detector calibration and simulations
  - Collaborators on T2K, MINERvA, MicroBooNE, and DUNE, GENIE, USNA61
- Current funding:
  - DOE
    - Just renewed (FY18-20) by DOE for 3 year cycle
    - Explicit support for efforts on SBN

Faculty Summary

- V. Paolone, 40% SBN, 30% T2K, 10% MINERvA, 20% DUNE /(USNA61)
  - 10% MicroBooNE: Beam/flux
  - 30% ICARUS
  - 1 postdoc (→ ~1.5)
  - 2 students

Postdoc Summary

Athula Wickremasinghe: 50% on SBN, 50% USNA61 Started on SBN in 2015

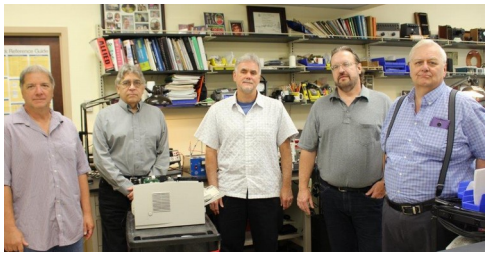
- 50% MicroBooNE (resident at FNAL):
  - Co-convener beam/flux group, detector simulation studies (diffusion), beam quality studies
- Physics interests: Flux constraints (hadro-production measurements), Investigating physics potential of off-axis NuMI neutrinos using SBN detectors and how USNA61 could help with flux constrains

Graduate Student

- Hang Su (Paolone): 50% on SBN (50% on MINERvA)
  - Could be sent to FNAL to work on installation and commissioning

Other People and Facilities

- Engineer/Technicians – Pittsburgh Physics Electronic Shop:
  - The physics electronics shop utilizes 1400 square feet of floor space. Two full time personnel (EE/Designer and technician) are at the disposal of the HEP group.
  - Presently working on upgrade electronics design for USNA61 and ATLAS



- The physics machine shop currently utilizes approximately 3400 square feet witha staff of two full time machinists.
  - The shop was used extensively for the T2K electronics mounting and cooling hardware and LI hardware for both MINERνA and T2K.

Proposed Pittsburgh ICARUS Activities

- Personnel:
  - Faculty: Paolone, G.S. Hang Su+replacement, Postdoc (from redirection)

Science interest [Check all that apply.]

- [x] Nue Appearance
- [ ] Numu Disappearance
- [x] Cross section using NuMI beam
- [ ] Oscillation Fits
- [ ] Background Studies
- [x] Other (describe in Comments)

Including stopping Kaons (mono-chromatic nu_mus from NUMI beam dump), Improving SBN NuMI flux predictions using NA61 hadro-production measurements.

Which Activities is your institution interested to contribute?

- [ ] Development and tests
- [x] Installation
- [ ] Pre-commissioning
- [x] Commissioning
- [x] Detector operation
- [x] Data taking
- [ ] Event reconstruction
- [x] Data Analysis
- [x] Publications, presentation to conferences, outreach

Which sub-systems is your institution interested to contribute? [Check all that apply.]

- [ ] Wire chambers
- [ ] High-voltage
- [x] Scintillation light readout
- [ ] PMT laser calibration
- [x] CRT (split in bottom part, sides and top)
- [ ] DAQ
- [ ] Trigger
- [ ] Slow control
- [ ] Online monitoring
- [ ] LAr quality control
- [ ] Control of cryogenics (cryogenics itself is a Fermilab responsibility)
- [ ] Data storage and data transfer
- [ ] Event simulation: BNB; NuMI OA
- [ ] Event reconstruction: BNB; NuMI OA
- [x] Cosmic rays data taking and analysis

Personnel Summary on ICARUS by FY

	FY18	FY19	FY20	FY21
V. Paolone	20%	30%	40%	50%
PD: Athula Wickremasinghe (+Replacement)	25%	50%	50%	50%
G.S.: Hang Su (+Replacement)	25%	50%	100%	100%
Engineer/ Tech/Machine Shop	25%	25%	25%	10%
Undergrad	0	1	1	1