

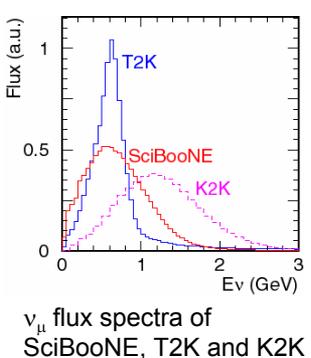
# SciBooNE

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Time line of SciBooNE

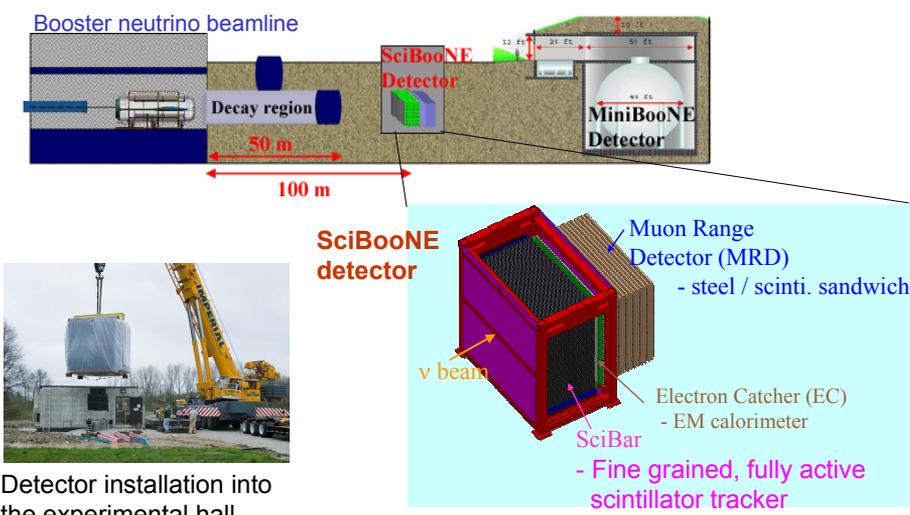
## 1. Overview

- ❑ **Neutrino cross section measurements around 1GeV**
  - Essential for future neutrino oscillation experiments, such as T2K
- ❑ **Combination of Fermilab Booster neutrino beam and the SciBar detector used in KEK, Japan**
  - SciBooNE neutrino spectrum matches that of T2K
  - **Only two years from formation to first data!**
- ❑ **Project  $2 \times 10^{20}$  protons on target (POT)**
  - $10^{20}$  POT each in neutrino mode and in anti-neutrino mode

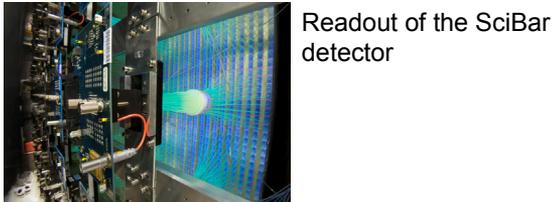


- 2005, Summer - Collaboration formed
- 2005, Dec - Proposal
- 2006, May - DOE review
- 2006, Jul - Detectors move to FNAL
- 2006, Sep - Groundbreaking
- 2006, Nov - EC Assembly
- 2007, Feb - SciBar Assembly
- 2007, Mar - MRD Assembly
- 2007, Mar - Cosmic Ray Data
- 2007, Apr - Detector Installation
- 2007, May - Commissioning
- 2007, Jun - Anti-neutrino Data Run**

## 2. Experimental setup

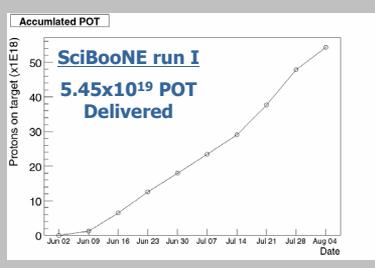


- ❑ **SciBar**
  - Extruded scintillators with wavelength-shifting (WLS) fiber readout
  - scintillators are neutrino target
  - 3m x 3m x 1.7m, 15 tons
  - 14,336 channels
- ❑ **EC**
  - 2 planes (11X<sub>0</sub>)
  - 256 channels
  - Identify  $\nu_e$  and  $\pi^0$
- ❑ **MRD**
  - 12 2"-thick iron plates
  - 362 channels
  - Measure muons up to 1.2 GeV/c

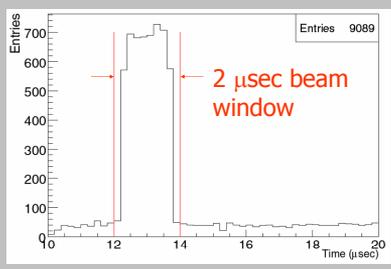
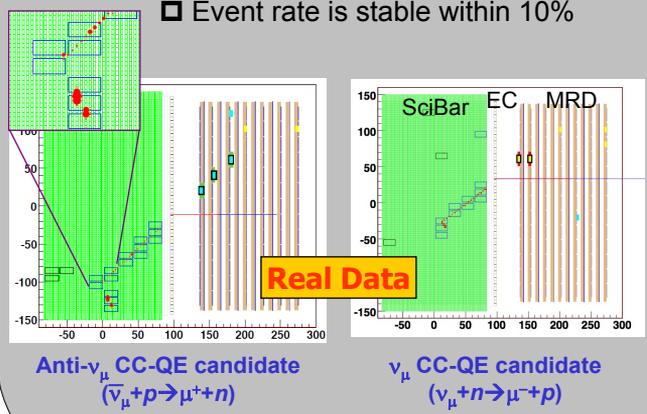


## 3. Anti-neutrino data-taking

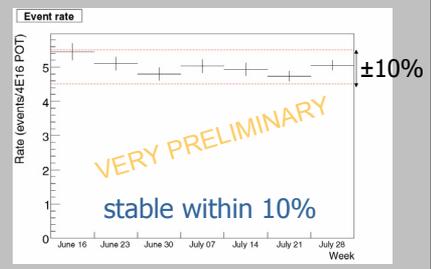
- ❑ Physics data taken during June 8<sup>th</sup> – August 3<sup>rd</sup> (SciBooNE run I)
- ❑ Delivered  $5.45 \times 10^{19}$  POT
  - **half of projected for anti-neutrinos!**
- ❑ Detector live time fraction ~95%
- ❑ Detectors are working well
- ❑ Event rate is stable within 10%



Accumulated number of POT from the start of data-taking



Event timing of CC candidates vertex inside SciBar



Event rate stability of CC candidates vertex inside SciBar

**Physics analyses are on-going!**

## 4. Summary

- ❑ SciBooNE measures neutrino-nucleus cross sections around 1 GeV
- ❑ Anti-neutrino data corresponding to  $5 \times 10^{19}$  POT have been collected
  - Physics analyses are on-going
- ❑ The experiment will switch to neutrino mode running in October 2007