



# CDF Japan Group Contribution

## (1) Detector Construction and Operation

### Superconducting Solenoid Coil

Superconducting solenoid coil was made at Hitachi company in a collaboration with University of Tsukuba and Fermilab.



Superconducting solenoid coil was being made at Hitachi company.



People at University of Tsukuba and Hitachi in front of completed Superconducting solenoid coil.



People at University of Tsukuba and KEK in front of the CDF detector with a Superconducting solenoid coil installed in 1984.

### Central ElectroMagnetic Calorimeter (CEM)

Scintillator and wavelength-shifter were procured and tested in Japan. The assembly of scintillator was done based on the light yield and thickness measured in Japan. University of Tsukuba and KEK worked on the cosmic ray test and testbeam calibration of CEM.



Cosmic ray test stand of a Wedge module at IB4.



A Tsukuba graduate student with the CEM at ANL.



A Wedge module at IB4.

Shinhong Kim, Kuni Kondo

University of Tsukuba

### Plug ElectroMagnetic Calorimeter (PEM)

The gas proportional chamber with resistive plastic tubes for PEM was developed at Tsukuba. Testbeam calibration of PEM was done by University of Tsukuba and KEK members.



PEM prototype completed in 1983.



A gas proportional chamber with resistive plastic tubes.



A whole PEM is being installed at B0 assembly hall after the calibration of testbeam in 1986.



A PEM quadrant module.

### Central Muon chamber Upgrade (CMUP)

Tsukuba group has made the front-end electronics boards for signal readout and HV distribution. The QC system (gas, HV) was designed and brought to U of Illinois.



Gas tightness and HV resistance are measured automatically by this system, which can handle up to 16 chambers at once.

