Lancaster University

Neutrino Physics Group

Lancaster University Neutrino Physics Group (2004-)

Laura Kormos
Faculty

OPAL
SNO/T2K

Alex Finch
Sen. Research

JADE/ALEPH
D-Zero
T2K

Jaroslaw Nowak
Faculty

ICARUS/MiniBooNE
T2K/NOvA/MINOS
LBNE

Helen O'Keeffe
Faculty

SNO/T2K

Peter Ratoff
Faculty

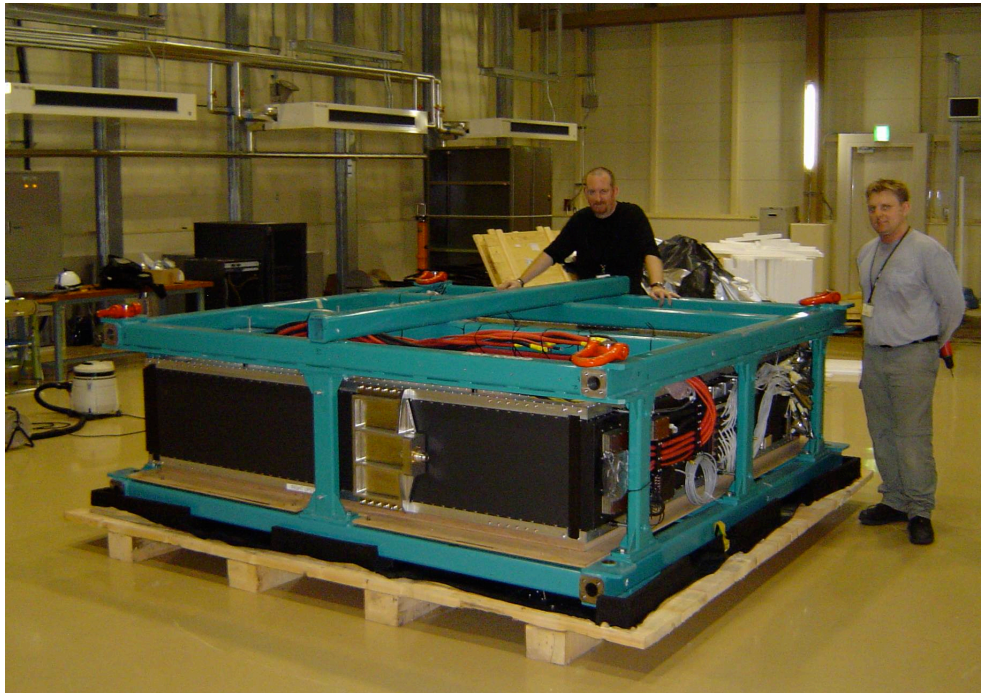
Crystal Ball/DELPHI
D-Zero/ATLAS
Gargamelle (CERN)
T2K/LBNE

1 Postdoc (rising to 2 or 3 ?) & 4 PhD students (rising to 5 or 6 ?)

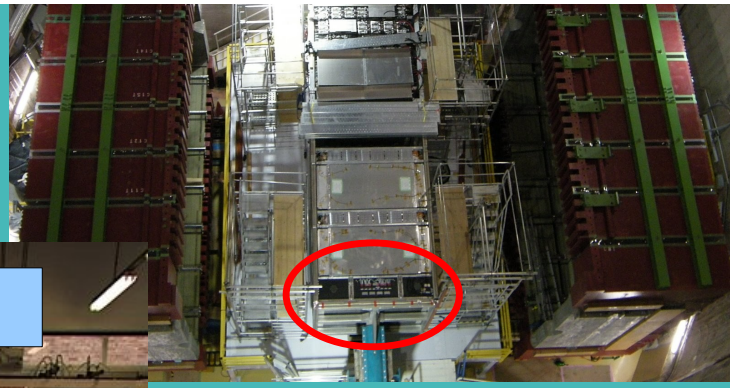
Lancaster Detector Development & Construction Activities

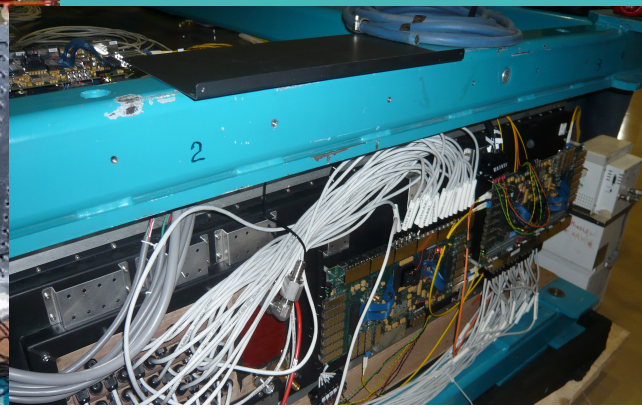
ATLAS Endcap Silicon Tracker

T2K Near Detector ECAL

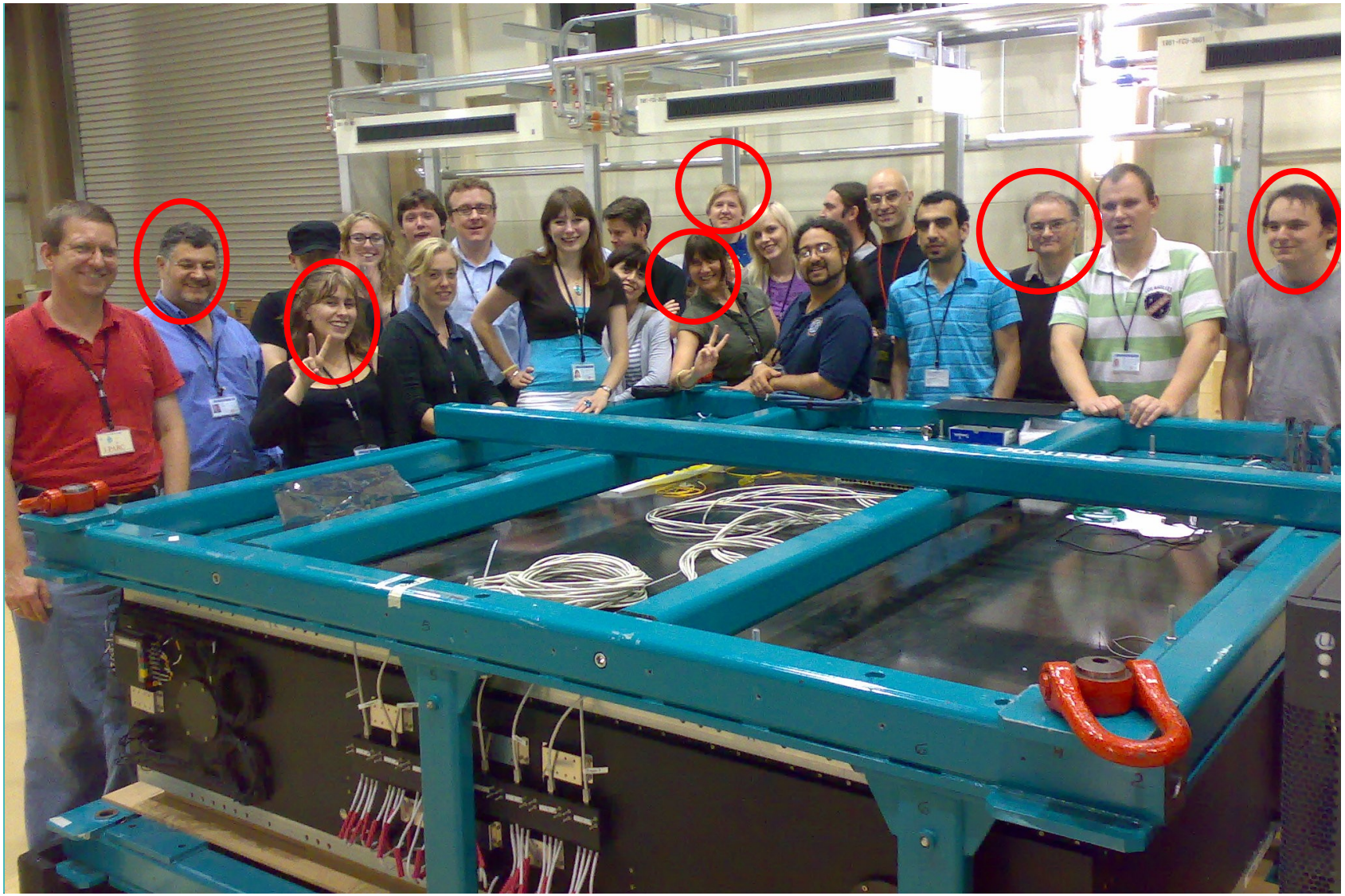


T2K ECAL Construction in Lancaster



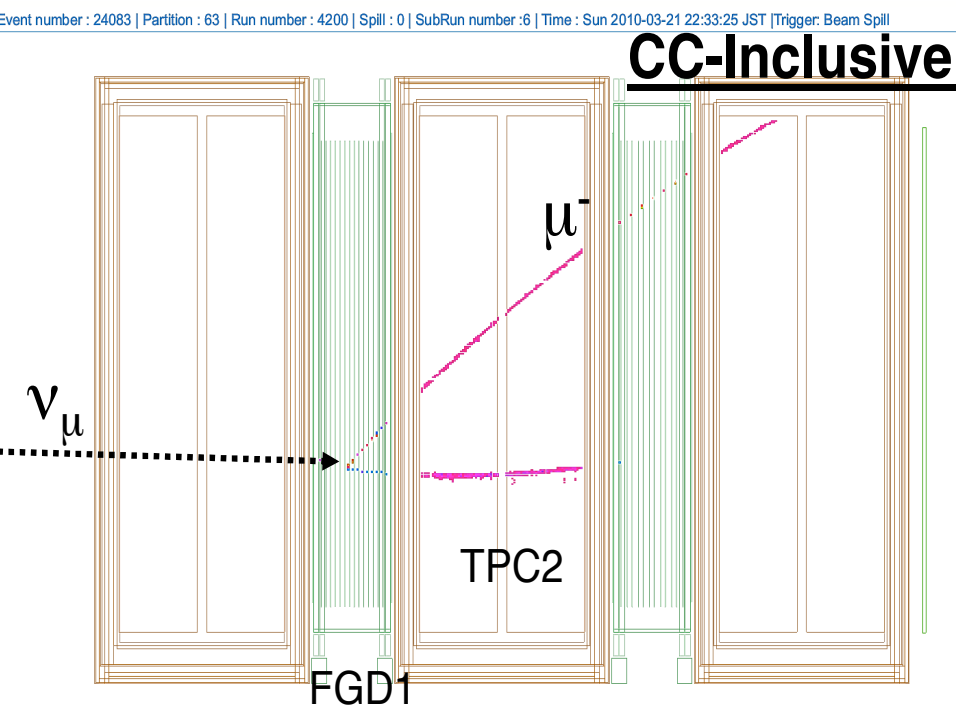


DownStream (DS) ECAL module awaiting installation at JPARC

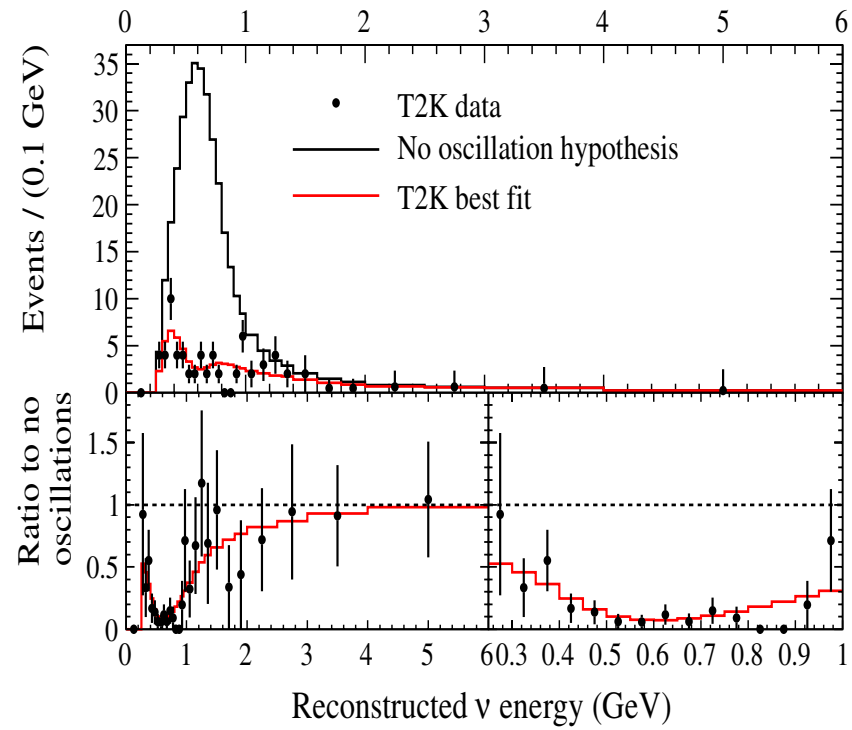


T2K Software & Physics Contributions

Offline event display for Near Detector



Muon neutrino disappearance 2013



Additional Experience

- Jarek Nowak
  - ICARUS (Monte Carlo analysis)
  - MiniBooNE (cross section measurements)
  - T2K (reconstruction algorithm for SMRD and test of SMRD module and installation)
  - NOvA (production of NOvA modules, physics coordinator, detector commissioning,…)
  - MINOS (MC coordinator, data analysis)

Planned work for the LBNE

- 35 ton prototype
  - Data analysis
  - DAQ - fast data monitoring
- LBNE
  - Neutrino event reconstruction (not a reconstruction algorithm)
  - Setup a test stand for a cold elements of the LBNE detectors. JN got a grant to buy a cryo system which will be available by March 2014.

- **Self pressuring cryogenic vessel**
- **TPV-160**

Model	TPV-30	TPV-60	TPV-120	TPV-160
Capacity (ltrs)	30	60	120	160
Diameter (mm)	410	460	535	640
Height (mm)	664	998	1281	1369
Weight empty (kg)	42	60	112	120
Weight full LN2 (kg)	66	102	187	249
Max working pressure (bar)	4.0	4.0	4.0	4.0
Static evaporation rate (% per day)	3.3	2.0	1.2	1.1

- **Dewar DF-50**

Model	DF-0.5	DF-1.0	DF-1.0W	DF-2	DF-3	DF-6	DF-10	DF-15	DF-25	DF-50
Capacity (ltrs)	0.5	1	1	2	3	6	10	15	25	50
Internal diameter (mm)	65	85	100	100	185	185	152	250	250	406
External diameter (mm)	87	107	122	122	200	200	200	300	300	460
Internal height (mm)	180	206	157	285	160	270	625	360	560	435
External height (mm)	204	232	177	313	190	300	700	440	640	532
Weight empty (kg)	0.5	0.8	0.9	0.9	1.8	2.4	7.4	9.3	20.0	30.0