

## NuFact 06 Meeting Outline and Plenary Agenda

### Thursday, August 24

#### Morning: Motivation and Overview

07:00-08:00	Coffee and Continental Breakfast at the Beckman Center	
07:00-07:45	Shuttles pick up at Hotel	
	<i>Chair: D. Casper (UC Irvine)</i>	
08:00	<b>Welcome</b>	<b>J. Hemminger</b> (UC Irvine)
08:10	<b>Neutrino Physics Overview</b>	<b>J.W.F. Valle</b> (Valencia)
08:50	<b>The Last Five Years</b>	<b>S. Wojcicki</b> (Stanford)
09:30	<b>The Next Five Years</b>	<b>T. Nakaya</b> (Kyoto)
10:10	Break	
	<i>Chair: J.J. Gomez Cadenas (Valencia)</i>	
10:35	<b>Getting the Most from Oscillation Experiments</b>	<b>H. Minakata</b> (Tokyo Metro)
11:15	<b>Beyond T2K and NOvA</b>	<b>W. Winter</b> (IAS)
11:55	<b>Radioactive Ion Beams</b>	<b>A. Fabich</b> (CERN)
12:35	Lunch	

#### Afternoon: ISS Report and Working Group Introductions

	<i>Chair: P. Dornan (Imperial)</i>	
14:00	<b>ISS Introduction</b>	<b>P. Dornan</b> (Imperial)
14:10	<b>ISS Physics Working Group Report and Discussion</b>	<b>Y. Nagashima</b> (Osaka)
14:50	<b>ISS Accelerator Working Group Report and Discussion</b>	<b>M. Zisman</b> (LBNL)
15:30	Break	
16:00	<b>ISS Detector Working Group Report and Discussion</b>	<b>A. Blondel</b> (Geneva)
	<i>Chair: T. Nakaya (Kyoto)</i>	
16:45	<b>Working Group 1 Introduction</b>	
17:00	<b>Working Group 2 Introduction</b>	<b>M. Sakuda</b> (Okayama)
17:15	<b>Working Group 3 Introduction</b>	<b>H. Kirk</b> (BNL)
17:30	<b>Working Group 4 Introduction</b>	<b>A. Sato</b> (Osaka)
17:45	<b>Welcome Reception at Beckman Center</b>	

## Friday, August 25

### Morning: Experimental Techniques

07:30-08:30	Coffee and Continental Breakfast at the Beckman Center	
07:30-08:15	Shuttles pick up at Hotel	
	<i>Chair: M. Lindroos (CERN)</i>	
08:30	<b>Beam Cooling with Ionization Losses</b>	<b>C. Rubbia</b> (CERN)
09:00	<b>Muon Colliders</b>	<b>S. Geer</b> (FNAL)
09:30	<b>What (Should) Sensitivity Estimates Mean?</b>	<b>Jan Conrad</b> (KTH)
10:00	Break	
10:30-12:30	Working Group Session 1	
12:30	Lunch	

### Afternoon: Phenomenology

14:00-16:00	Working Group Session 2	
16:00	Break	
	<i>Chair: J.L. Feng (UC Irvine)</i>	
16:30	<b>Searching for New Physics with Neutrinos</b>	<b>P. Huber</b> (Wisconsin)
17:15	<b>Neutrinos and the Cosmos</b>	<b>K. Abazajian</b> (Maryland)
18:00	Session ends, shuttles leave for hotels	

## Saturday, August 26

### Open Day: No scientific sessions

09:30	<b>Bus leaves hotel and Campus Village for optional excursion to Getty Museum</b>	
11:00	<b>Arrival at Getty Center</b>	
12:30	<b>Picnic Lunch at Getty Center</b>	
14:30	<b>Bus leaves Getty Center for return to Irvine</b>	
16:00	<b>Bus arrives back at hotel and Campus Village</b>	

**Sunday, August 27****Morning: Machine R&D**

07:30-08:30	Coffee and Continental Breakfast at the Beckman Center	
07:30-08:15	Shuttles pick up at Hotel	
	<i>Chair: S. Machida (CCLRC/RAL/ASTeC)</i>	
08:30	<b>Accelerating Muons: Options and R&amp;D</b>	<b>J.S. Berg</b> (BNL)
09:10	<b>High-Power Targetry R&amp;D</b>	<b>N. Simos</b> (BNL)
09:50	<b>MUCOOL and MICE</b>	<b>A. Bross</b> (FNAL)
10:30	Break	
11:00-12:30	Working Group Session 3	
12:30	Lunch	

**Afternoon: Neutrino Interactions**

14:00-16:00	Working Group Session 4	
16:00	Break	
	<i>Chair: K. McFarland (Rochester)</i>	
16:30	<b>Neutrino Interactions: What Do Oscillation Experiments Need to Know?</b>	<b>D. Harris</b> (FNAL)
17:15	<b>Neutrino Interactions: Experiments</b>	<b>M. Wascko</b> (Imperial)
18:00	Session ends, shuttles leave for hotel	

**Monday, August 28****Morning: Hadron Production**

07:30-08:30	Coffee and Continental Breakfast at the Beckman Center	
07:30-08:15	Shuttles pick up at Hotel	
	<i>Chair: V. Palladino (INFN-Naples)</i>	
08:30	<b>Hadron Production Uncertainties and Neutrino Beams</b>	<b>R. Raja</b> (FNAL)
09:15	<b>Hadron Production Experiments</b>	<b>D. Schmitz</b> (Columbia)
10:00	Break	
10:30-12:30	Working Group Session 5	
12:30	Lunch	

**Afternoon: Muon Physics**

13:45-15:45	Working Group Session 6	
15:45	Break	
	<i>Chair: W. Molzon (UC Irvine)</i>	
16:10	<b>Low-Energy Muon Physics and Phenomenology</b>	<b>A. DeGouvea</b> (Northwestern)
16:50	<b>Low-Energy Muon Experiments</b>	<b>T. Mori</b> (Tokyo)
17:30	Session ends, shuttles and buses leave for conference dinner	
18:45	Beachside sunset reception at The Montage, Laguna Beach	
20:00	Dinner at The Montage, Laguna Beach	

**Tuesday, August 29****Morning: Detectors**

07:30-08:30	Coffee and Continental Breakfast at the Beckman Center	
07:30-08:15	Shuttles pick up at Hotel	
	<i>Chair: H. Sobel (UC Irvine)</i>	
08:30	<b>Underground Laboratories</b>	<b>W. Haxton</b> (Washington)
09:00	<b>Detector R&amp;D Developments and Prospects</b>	<b>B. Franklin</b> (Yale)
09:30	<b>What Else Can Large Neutrino Detectors Do?</b>	<b>T. Kajita</b> (ICRR)
10:00	Break	
10:30-12:30	Working Group Session 7	
12:30	Lunch	

**Afternoon: Regional Perspectives**

14:00-16:00	Working Group Session 8	
16:00	Break	
	<i>Chair: S. Geer (FNAL)</i>	
16:30	<b>Asian Regional Outlook</b>	<b>TBA</b>
17:00	<b>North American Regional Outlook</b>	<b>TBA</b>
17:30	<b>European Regional Outlook</b>	<b>TBA</b>
18:00	Session ends, shuttles leave for hotel	
TBA	Scientific Program Committee and Convenors Meeting	

**Wednesday, August 30****Morning: Summary and Discussion**

07:30-08:30	Coffee and Continental Breakfast at the Beckman Center	
07:30-08:15	Shuttles pick up at Hotel	
	<i>Chair: T. Kajita (ICRR)</i>	
08:30	<b>Working Group 1 Report</b>	
09:00	<b>Working Group 2 Report</b>	<b>G. Zeller</b> (Columbia) <b>S.Boyd</b> (Warwick)
09:30	<b>Working Group 3 Report</b>	<b>R. Garoby</b> (CERN)
10:00	<b>Working Group 4 Report</b>	<b>F. Gatti</b> (INFN-Genoa)
10:30	Break	
11:00	<b>ISS Discussion and Future Plans</b>	<b>Moderator:</b> <b>P. Dornan</b> (Imperial)
12:30	Lunch	
12:30-14:30	Workshop ends, shuttles leave for hotel	

## Working Group 1 (Neutrino Oscillation) Agenda (Auditorium)

### Session 1: Friday, August 25, 10:30-12:30

(joint session with WG2)

10:30	Solar and Atmospheric Neutrinos	M. Smy (UC Irvine)
10:55	MiniBooNE Oscillation Analysis	A. Curioni (Yale)
11:15	Final Results from K2K	K. Kaneyuki (ICRR)
11:40	Results from MINOS	P. Vahle (University College)
12:05	Joint BNL-FNAL Long Baseline Study	M. Bishai (BNL)

### Session 2: Friday, August 25, 14:00-16:00

14:00	Opening a New Window for Warm Dark Matter	A. Kusenko (UCLA)
14:30	Two Modes of Searching for New Neutrino Oscillations at MINOS	A. Friedland (LANL)
15:00	Optimization of a Neutrino Factory Experiment	P. Huber (Wisconsin)
15:30	Progress in Understanding of Magnetic Detectors for a Neutrino Factory	A. Cervera (Valencia)

### Session 3: Sunday, August 27, 11:00-12:30

11:00	Lepton Family Symmetries for Neutrino Masses and Mixing	E. Ma (UC Riverside)
11:30	How Can We Test See-Saw Experimentally?	H. Murayama (LBL)
12:00	Democracy in Neutrino Oscillations: Magic/S3 Group Mixing and its Derivatives	P. Harrison (Warwick)

### Session 4: Sunday, August 27, 14:00-16:00

14:00	CNGS and OPERA	G. De Lellis (Naples)
14:30	Water Cherenkov Measurements at 2km for T2K	M. Smy (UC Irvine)
14:50	Liquid Argon Measurements at 2km for T2K	A. Badertscher (ETH)
15:10	T2KK	K. Okumura (ICRR Tokyo)
15:30	NOvA	C. Howcroft (Caltech)

### Session 5: Monday, August 28, 10:30-12:30

(joint session with WG2)

10:30	Comparison of GEANT4 and Mars Pion Cross Sections with HARP Data	P. Soler (Glasgow)
11:00	Neutrino Flux Uncertainties with New HARP Data	M. Sorel (Valencia)
11:30	Effect of Beam Uncertainties on NuMI Analyses	S. Kopp (FNAL)
12:00	Effects of Cross Section Uncertainties and Near Detectors on Oscillation Sensitivities	J. Dunmore (UC Irvine)

**Session 6: Monday, August 28, 13:45-15:45***(joint session with WG2)*

13:45	<b>Performance of Betabeams at <math>\gamma=100</math> and Combination with Atmospheric Neutrino Data</b>	<b>M. Mezzetto</b> (Padova)
14:10	<b>A Betabeam Complex Based on Machine Upgrades of the LHC</b>	<b>E. Fernandez-Martinez</b> (UAM)
14:30	<b>Optimization of Water Cherenkov for Betabeams</b>	<b>E. Couce</b> (Valencia)
14:55	<b>Update of a Joint Liquid Scintillator/Liquid Argon/Water Cherenkov Design Study</b>	<b>A. Rubbia</b> (ETH)
15:20	<b>A Large Liquid Argon Detector: LANNDD</b>	<b>D. Cline</b> (UCLA)

**Session 7: Tuesday, August 29, 10:30-12:30**

10:30	<b>Unitarity of the Leptonic Mixing Matrix</b>	<b>C. Biggio</b> (Madrid)
11:00	<b>Discovery Reach for Non-Standard Interactions in a Neutrino Factory</b>	<b>T. Ota</b> (TU Munich)
11:30	<b>Matter Effect on Neutrino Oscillation from Violation of Universality in Neutral Current Interactions</b>	<b>N. Okamura</b> (Yukawa Inst.)
12:00	<b>Maximal CP Phase Effect and <math>\theta_{13}</math> Screening in Long Baseline Experiments</b>	<b>A. Takamura</b> (Toyota National College of Technology)

**Session 8: Tuesday, August 29, 14:00-16:00**

14:00	<b>Spectra of Neutrinos from Dark Matter Annihilation</b>	<b>M. Cirelli</b> (Yale)
14:30	<b>Determining the Neutrino Mass Hierarchy by Precision Measurements in Disappearance Experiments</b>	<b>R.Z. Funchal</b> (Sao Paolo)
15:00	<b>Double CHOOZ</b>	<b>D. Kaplan</b> (IIT)
15:20	<b>Angra Neutrino Project: Safeguards Applications</b>	<b>J. dos Anjos</b> (CBPF)

## Working Group 2 (Neutrino Interactions) Agenda (Newport Room/Auditorium)

### **Session 1: Friday, August 25, 10:30-12:30**

*(joint session with WG1 in Auditorium)*

10:30	Solar and Atmospheric Neutrinos	M. Smy (UC Irvine)
10:55	MiniBooNE Oscillation Analysis	A. Curioni (Yale)
11:15	Final Results from K2K	K. Kaneyuki (ICRR)
11:40	Results from MINOS	P. Vahle (University College)
12:05	Joint BNL-FNAL Long Baseline Study	M. Bishai (BNL)

### **Session 2: Friday, August 25, 14:00-16:00**

14:00	Latest K2K Results	Y. Hayato (ICRR Tokyo)
14:30	MiniBooNE Results on Neutral Current $\pi^0$ Production	J. Link (Virginia Tech)
15:00	Neutrino Interactions Measurements with the Liquid Argon Prototype Detector in the CERN Beam	E. Rondio (SINS, Warsaw)
15:30	Recent Electron Scattering Results from JLAB	S. Manly (Rochester)

### **Session 3: Sunday, August 27, 11:00-12:30**

11:00	MINOS Near Detector Results	M. Kordosky (University College)
11:30	Latest NuTeV Results	M. Tzanov (U. Colorado - Boulder)
12:00	Review of Experimental Results on Charm Production by Neutrinos	D. Mason (FNAL)

### **Session 4: Sunday, August 27, 14:00-16:00**

14:00	The MINERvA Experiment	S. Manly (Rochester)
14:30	SciBooNE Precision Measurements of Neutrino Cross-Sections	H. Tanaka (Kyoto)
15:00	Proposal for Ds Measurement at JPARC	Y. Miyachi (IIT)
15:30	Search for Charmed Pentaquarks at a Neutrino Factory	G. DeLellis (Naples)

**Session 5: Monday, August 28, 10:30-12:30***(joint session with WG1 in Auditorium)*

10:30	Comparison of GEANT4 and Mars Pion Cross Sections with HARP Data	P. Soler (Glasgow)
11:00	Neutrino Flux Uncertainties with New HARP Data	M. Sorel (Valencia)
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12:00	Effects of Cross Section Uncertainties and Near Detectors on Oscillation Sensitivities	J. Dunmore (UC Irvine)

**Session 6: Monday, August 28, 13:45-15:45***(joint session with WG1 in Auditorium)*

13:45	Performance of Betabeams at $\gamma=100$ and Combination with Atmospheric Neutrino Data	M. Mezzetto (Padova)
14:10	A Betabeam Complex Based on Machine Upgrades of the LHC	E. Fernandez-Martinez (UAM)
14:30	Optimization of Water Cherenkov for Betabeams	E. Couce (Valencia)
14:55	Update of a Joint Liquid Scintillator/Liquid Argon/Water Cherenkov Design Study	A. Rubbia (ETH)
15:20	A Large Liquid Argon Detector: LANND	D. Cline (UCLA)

**Session 7: Tuesday, August 29, 10:30-12:30**

10:30	Comparison of Quasi-Elastic LDA Calculation with $C(e,e')$ Data at 200-600 MeV	H. Nakamura (Waseda)
11:00	Single Pion Production	O. Lalakulich (Rostov State University)
11:30	Total Neutrino and Antineutrino Cross Sections for Betabeams	D. Meloni (Rome)
12:00	Close of session	

**Session 8: Tuesday, August 29, 14:00-16:00**

14:00	Discussion and Summary Preparation	All
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## Working Group 3 (Machine) Agenda (Huntington Room)

### **Session 1: Friday, August 25, 10:30-12:30**

10:30	High Power Proton Driver	B. Weng (BNL)
10:50	Time Structure of a Superbeam	M. Mezzetto (INFN-Padova)
11:10	NuMI Operational Experience vs. Design	M. Bishai (BNL)
11:30	CNGS: Results from Commissioning	M. Meddahi (CERN)
11:50	Focus Session: Conventional Neutrino Facilities and Superbeams	Moderator: M. Meddahi (CERN)

### **Session 2: Friday, August 25, 14:00-16:00**

14:00	CNGS Target	L. Bruno (CERN)
14:20	Shock Studies in Tantalum and Tungsten at High Temperature	R. Bennett (RAL)
14:40	Solid Target Studies in the UK: Simulations of Shock in Solids	G. Skoro (Sheffield)
15:00	Focus Session: High Power Solid Targets	Moderator: R. Bennett (RAL)
15:40	Lower-Frequency RF Phase Rotation Techniques for Both Muon Signs	S. Brooks (RAL)

### **Session 3: Sunday, August 27, 11:00-12:30**

11:00	Ion Losses and Collimation for the Betabeam Acceleration Scenario	A. Fabich (CERN)
11:20	Betabeam Ring Optics Design and Optimization	A. Chance (CEA Saclay)
11:40	Large Aperture Superconducting Dipoles for the Betabeam Decay Ring	E. Wildner (CERN)
12:00	A Low-Energy Accumulator and Cooling Ring for the Betabeam	M. Lindroos (CERN)

### **Session 4: Sunday, August 27, 14:00-16:00**

14:00	SPL-based 5 GeV Proton Driver	R. Garoby (CERN)
14:20	On the Use of Non-Scaling FFAG Accelerator as Proton Driver	A. Ruggiero (BNL)
14:40	J-PARC	Y. Yamazaki (KEK)
15:00	Neutrino Factory (ISS) Scoping Studies	G. Rees (RAL)
15:20	Status of the Front-End Test Stand at RAL	J. Pozimski (RAL)
15:40	Measurement of the Production of Charged Pions by Low-Energy Protons	S. Borghi (CERN/Geneva)

**Session 5: Monday, August 28, 10:30-12:30**

10:30	Muon Acceleration with FFAG Accelerators	Y. Mori (Kyoto)
10:50	Beam Dynamics Issues in Linear non-Scaling FFAGs	J.S. Berg (BNL)
11:10	Status of PRISM-FFAG	M. Yoshida (Osaka)
11:30	First Tracking Studies of Phase Rotation Using a Scaling FFAG	A. Kurup (Imperial)
11:50	50T Muon-Cooling Solenoids	D. Summers (Mississippi)
12:10	Simulation of Multiple Coulomb Scattering and Comparison with Recent Data	S. Striganov (FNAL)

**Session 6: Monday, August 28, 13:45-15:45**

13:45	CNGS Horn	A. Pardons (CERN)
14:05	Horn and Solenoid	H. Kirk (BNL)
14:25	High-energy High Frequency Buncher	Y. Iwashita (Kyoto)
14:45	Muon Source at Fermilab	D. Neuffer (FNAL)
15:05	Pion Capture and Transport System	M. Yoshida (Kyoto)
15:25	G4Beamline	T. Roberts (Muons Inc.)

**Session 7: Tuesday, August 29, 10:30-12:30**

10:30	Muon Acceleration System	S. Machida (RAL)
10:50	Dogbone RLA	A. Bogacz (JLAB)
11:10	Scheme for a Muon Collider	R. Palmer (BNL)
11:30	A Shared Superconducting Linac for Protons and Muons	R. Johnson (Muons Inc.)
11:50	Design Study of Muon Linac	H. Miyadera (LANL)
12:10	201 MHz Prototype RF Cavity Status for MUCOOL/MICE	D. Li (LBL)

**Session 8: Tuesday, August 29, 14:00-16:00**

14:00	A Very High Field Solenoid Magnet for Muon Cooling	S. Kahn (Muons Inc.)
14:20	The Muon Ionization Cooling Experiment	T. Hart (FNAL)
14:40	New Idea for Producing an Intense, Cool Muon Beam	D. Kaplan (IIT)
14:50	Storage Ring Options	C. Johnstone (FNAL)
15:10	Storage Ring Instrumentation	A. Blondel (Geneva)
15:30	Study of Errors in Muon Decay Ring	F. Meot (CEA Saclay)

## Working Group 4 (Muon Physics) Agenda

### **Session 4: Sunday, August 27, 14:00-16:00 (Board Room)**

14:00	Organizational Discussion	All
14:15	PRISM/PRIME	M. Aoki (Osaka)
14:45	Progress at Fermilab on $\mu/e$ Possibilities	S. Geer (FNAL)
15:15	Muon Source at Fermilab	D. Neuffer (FNAL)

### **Session 5: Monday, August 28, 10:30-12:30 (Newport Room)**

10:30	Status Report on MEG	W. Molzon (UC Irvine)
11:00	Development of Timing Counters for MEG	S. Dussoni (Genoa)
11:30	Liquid Xenon Gamma Ray Detector for MEG	R. Sawada (Tokyo)

### **Session 6: Monday, August 28, 13:45-15:45 (Newport Room)**

13:45	Muon Radiography Applications	K. Nagamine (UC Riverside/RIKEN/KEK)
14:15	Muon-Catalyzed Fusion	K. Ishida (RIKEN)
14:45	MICE and MuScat	M. Ellis (FNAL)