

Imperial College
London

Introduction to the Workshop

Yoshi Uchida
30 May 2016

PhyStat



INTERNATIONAL WORKSHOP ON STATISTICAL ISSUES IN NEUTRINO PHYSICS

THE KAVLI INSTITUTE FOR THE PHYSICS AND
MATHEMATICS OF THE UNIVERSE, KASHIWA, JAPAN

30 MAY–1 JUNE 2016

Local Organising Committee: Mark HARTZ/Christophe BRONNER/Richard CALLAND/Yoshinari HAYATO/Yasuhiro NISHIMURA/Kimihiro OKUMURA
Scientific Organising Committee: Yoshi UCHIDA/Jun CAO/Daniel CHERDACK/Robert COUSINS/David VAN DYK/Mark HARTZ/Pilar HERNANDEZ/Joe FORMAGGIO/Thomas JUNK/Asher KABOTH/Louis LYONS/Shun SAITO/Subir SARKAR/Elizabeth WORCESTER/Kai ZUBER

PhyStat- ν will address statistical issues in the broad range of modern neutrino physics, including making measurements of model parameters, setting limits, discovery criteria, discrete choice of models, Bayesian vs. frequentist inference, and combining experiments.

Two workshops are planned for 2016: this workshop at the Kavli Institute for the Physics and Mathematics of the Universe in Kashiwa, Japan in May, and a second workshop at Fermilab in the autumn.

These workshops will consist of invited and contributed talks, and poster and discussion sessions, and will bring together experts in the analysis of neutrino data with experts in statistics to explore the statistical issues in neutrino physics.

Structure of the Workshop

- Lecture on Statistics for Particle Physicists (Louis Lyons)
- Welcome and Introduction (Mark Hartz, Yoshi Uchida)
- Theoretical Overview (Serguey Petcov)
- **Use of Statistics at Existing Experiments**
- Address from the Director (Hitoshi Murayama)
- **Poster Presentations—short talks and reception**
- **Existing Experiments (continued)**
- **Invited and Contributed Talks**
 - from statistics at experiments and in phenomenology to pure statistical mathematics
- Panel Discussion
- Statistician's Summary (David Van Dyk)
- Physicist's Summary (Bob Cousins)
- Close

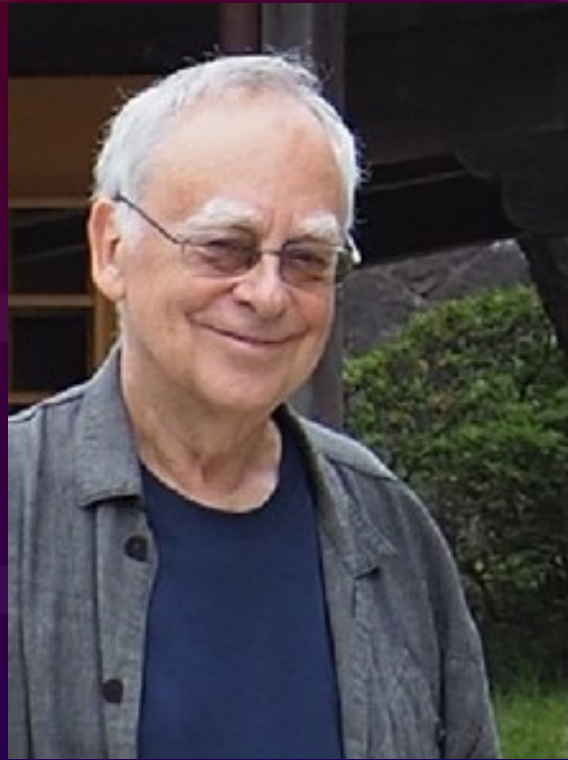
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Invited Experts

Louis
Lyons



Bob
Cousins



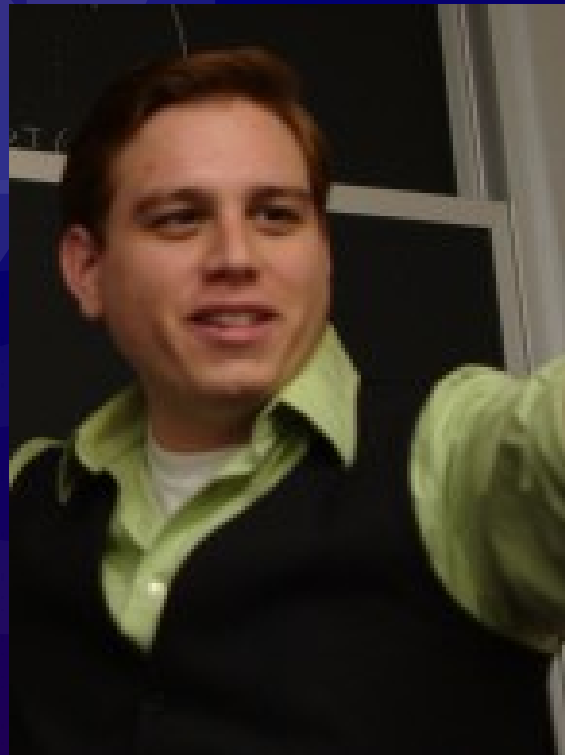
Sara
Algeri



Shiro
Ikeda



Michael
Betancourt



David
Van Dyk



Physicists and statisticians who are here to offer their expertise to the field of neutrinos

Scientific Organising Committee Members*

Dan
Cherdack



Elizabeth
Worcester



Asher
Kaboth



Mark
Hartz



Yoshi
Uchida



Please do talk to any of us at any time to raise any topics for discussion or questions etc.

(*neutrino-physicist members who are present)

Real-Time Documenting

We will maintain a document for discussion notes, corrections and questions during the workshop

We invite you to help us take notes, raise issues and ask questions in this document.

PhyStat-nu IPMU Shared Notes and Questions May/June 2016

About this file

During PhyStat-nu, we encourage attendees to insert their own notes, comments, corrections and questions in this shared document. If you have not logged into your Google account (or open this in an 'Incognito' or 'Private' window), your edits will be anonymous. Please be careful not to delete other people's text, except to make obvious corrections. To help with consistency, we can use the following conventions:

- Q: Question
- A: Answer
- C: Comment/correction etc
- Q [name]: for something that is specific to a person, although in general I think we can keep things unnamed.

Turning on "Tools → Document Outline" will allow you to navigate this document more easily. For simple mathematical expressions (e.g. " χ^2 "), use "Insert → Equation" to pop up a simple maths editor, or simply type as LaTeX in ASCII.

Monday 11.25: "The Current Status of Neutrino Physics" (Sergeuy PETCOV)

Please insert discussion notes, comments, corrections and questions here

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Monday 13.30: "Long-Baseline Accelerator Oscillation Experiments" (Asher KABOTH)

Please insert discussion notes, comments, corrections and questions here

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Monday 14.10: "Short- and Medium-Baseline Reactor Oscillation Experiments" (Sunny SEO)

Please insert discussion notes, comments, corrections and questions here

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Monday 15.20: "Direct Neutrino Mass Measurements Using Weak Decays" (Marco KLEESIEK)

Please insert discussion notes, comments, corrections and questions here

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Monday 16.00: "Solar Neutrinos" (Michael SMY)

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Monday 16.40: "Estimation of neutrino oscillation parameters with Markov Chain Monte Carlo" (Leila HAEGEL)

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- Please talk to any of the invited experts or SOC members with any questions or ideas for discussion



- Also make use of the live document
 - will help us clarify any issues as we go, gather topics for the panel discussion and produce a lasting record of the workshop
- Talk files will remain online, but no proceedings as such
 - we will produce a document that summarises the discussions and notes any consensuses that form or issues that need further thought
 - your input will be invaluable
- Next PhyStat- ν at Fermilab (19–21 September 2016)
 - <https://indico.fnal.gov/conferenceDisplay.py?confId=11906>