

**Information and Statistics in Nuclear Experiment and Theory: ISNET-3**  
**ECT\* Trento, Italy**  
**16<sup>th</sup>-20<sup>th</sup> of November, 2015**

**WORKSHOP PROGRAM**

**MONDAY**

- 9:00-9:20 **Dave Ireland (University of Glasgow, UK)**  
Introduction
- 9:20-9:40 **DISCUSSION: SCOPE AND AIMS OF A WORKSHOP**
- 9:40-10:20 **Rick Casten (Yale University, USA)**  
Confrontation of experiment and theory: relevant observables, misleading observables, and theoretical uncertainties
- 10:20-11:00 **Gianluca Colo (University of Milan and INFN)**  
Uncertainties in calculations beyond mean field: a perspective from particle-vibration coupling model point of view
- 11:00-11:30 **COFFEE BREAK**
- 11:30-12:10 **Achim Schwenk (TU Darmstadt)**  
Open problems in uncertainty quantification in calculations of neutron-rich matter
- 12:10-12:50 **Stefan Wild (Argonne National Laboratory, USA)**  
Derivative-free optimization for parameter estimation in computational nuclear physics
- 13:00-14:30 **LUNCH**
- 14:30-15:30 **ECT\* COLLOQUIUM**  
**Jorge Piekarewicz (Florida State University, USA)**  
Information and statistics: a new paradigm in theoretical nuclear physics
- 15:30-16:10 **Dick Furnstahl (Ohio State University, USA)**  
Uncertainty Quantification for Effective Field Theories
- 16:10-16:30 **COFFEE BREAK**
- 16:30-17:10 **Sarah Wesolowski (Ohio State University, USA)**  
Bayesian parameter estimation for Effective Field Theories
- 17:10-17:30 **CONCLUDING DISCUSSION**

**TUESDAY**

- 9:00-9:40 **Krzysztof Graczyk (University of Wroclaw, Poland)**  
Modeling nucleon form factors with methods of Bayesian neural networks
- 9:40-10:20 **Julia Bliss (Technical University of Darmstadt, Germany)**  
Impact of  $(\alpha, n)$  uncertainties on the nucleosynthesis in neutrino-driven winds
- 10:20-11:00 **Jan Ryckebusch (Ghent University, Belgium)**  
Extracting the physics information from pseudoscalar-meson photonproduction: a case study of  $p(\gamma, K^+) \Lambda$
- 11:00-11:30 **COFFEE BREAK**
- 11:30-12:10 **Scott Pratt (Michigan State University, USA)**  
Bayesian analysis of heavy-ion models and data from RHIC and the LHC
- 12:10-12:50 **David Regnier (CEA Bruyères, France)**  
Uncertainties in the microscopic theory of induced fission
- 13:00-14:30 **LUNCH**
- 14:30-15:10 **Amy Lovell (Michigan State University, USA)**  
Uncertainty quantification in nuclear reactions: a starting point
- 15:10-16:00 **DISCUSSION**

## WEDNESDAY

- 9:00-9:40 **Paul-Gerhard Reinhard (University of Erlangen, Germany)**  
Error estimates in self-consistent mean-field models
- 9:40-10:20 **Anatoli Afanasjev (Mississippi State University, USA)**  
Estimating theoretical uncertainties: from known nuclei to extremes of isospin and charge
- 10:20-11:00 **Nicolas Schunck (Lawrence Livermore National Laboratory, USA)**  
Uncertainty quantification and propagation in nuclear density functional theory
- 11:00-11:30 **COFFEE BREAK**
- 11:30-12:10 **Markus Kortelainen (University of Jyväskylä and Helsinki Institute of Physics, Finland)**  
Optimization and error propagation of the UNEDF family EDFs
- 12:10-12:50 **Alessandro Pastore (University of York, UK)**  
Nuclear structure with novel density functionals
- 13:00-14:30 **LUNCH**
- 14:30-15:10 **Paul Stevenson (University of Surrey, UK)**  
Estimating systematic errors in time-dependent Hartree–Fock
- 15:10-15:50 **Bartek Szpak (IFJ PAN Krakow and University of Warsaw, Poland)**  
Calibration of the N3LO nuclear density functionals
- 15:50-16:20 **COFFEE BREAK**
- 16:20-16:40 **Tiia Haverinen (University of Jyväskylä, Finland)**  
Uncertainty propagation within the UNEDF models
- 16:40-17:30 **DISCUSSION**

## THURSDAY

- 09:00-09:40 **Rebecca Surman (University of Notre Dame, USA)**  
Nuclear masses and the r-process abundance pattern
- 09:40-10:20 **Xavier Roca-Maza (University of Milan and INFN, Italy)**  
Covariance analysis for nuclear energy density functionals
- 10:20-11:00 **Nils Paar (University of Zagreb, Croatia)**  
Toward relativistic energy density functional for astrophysical applications
- 11:00-11:30 **COFFEE BREAK**
- 11:30-12:10 **Andreas Ekstrom (University of Tennessee, USA)**  
Optimization and uncertainty quantification of chiral forces: recent advances and future directions
- 12:10-12:50 **Christian Forsen (Chalmers University of Technology, Sweden)**  
Uncertainty analysis and order-by-order optimization of chiral nuclear interactions
- 13:00-14:30 **LUNCH**
- 14:30-15:10 **Rodrigo Navarro-Perez (Lawrence Livermore National Laboratory, USA)**  
Systematic uncertainty of phenomenological and effective NN interactions
- 15:10-15:50 **Enrique Ruiz Arriola (University of Granada, Spain)**  
Validation of nuclear forces for ab initio calculations: The case of A=2,3,4 nuclei
- 15:50-16:20 **COFFEE BREAK**
- 16:20-17:00 **DISCUSSION**

**FRIDAY**

- 9:00-9:40 **David Richards (Jefferson Laboratory, USA)**  
Improved methods on the study of hadronic physics from lattice QCD
- 9:40-10:20 **Yannen Jaganathen (Michigan State University, USA)**  
Optimized Gamow Shell Model interaction in the psd shell
- 10:20-11:00 **Witold Nazarewicz (Michigan State University, USA)**  
Summary+Open Discussion
- 11:00-11:30 **FAREWELL COFFEE**