Workshop on

"Algebraic Quantum Field Theory: Its Status and Its Future"

organized by

Romeo Brunetti (U Trento), Claudio Dappiaggi (U Pavia), Klaus Fredenhagen (U Hamburg), and Jakob Yngvason (U Vienna)

May 19 - 23, 2014

- **Monday, May 19, 2014**

  09:30 **Opening & Registration**

  10:00 – 10:15 **Welcome Address**

  10:15 – 11:00 **Chris Fewster**
  Algebraic quantum field theory in curved spacetimes

  11:00 – 11:30 *coffee/tea break*

  11:30 – 12:15 **Ko Sanders**
  Understanding free electromagnetism in the light of general covariance

  12:15 – 14:30 *lunch break*

  14:30 – 15:15 **Nicola Pinamonti**
  Influence of quantum matter fluctuations on the expansion parameter of timelike geodesics

  15:15 – 16:00 **Jochen Zahn**
  Locally covariant charged fields

  16:00 – 16:30 *break*

  16:30 – 17:00 **Benjamin Lang**
  Twisted Quantum Fields in Curved Spacetimes la C.J. Isham from the point of view of Algebraic Quantum Field Theory

  17:00 – 17:30 **Daniel Siemssen**
  Global Existence of Solutions of the Semiclassical Einstein Equation on Cosmological Spacetimes

- **Tuesday, May 20, 2014**

  09:30 – 10:15 **Kasia Rejzner**
  Quantum gravity from locally covariant quantum field theory: recent results and new perspectives

  10:15 – 11:00 **Michał Wrochna**
  Construction of Hadamard states for linearized Yang-Mills equations I

  11:00 – 11:30 *coffee/tea break*

11:30 – 12:15 **Christian Gérard**
Construction of Hadamard states for linearized Yang-Mills equations II

12:15 – 14:00 *lunch break*

14:00 – 14:45 **Rainer Verch**
Hadamard condition, local vacuum (S-J) states" and Wick-products

14:45 – 15:30 **Alexander Schenkel**
Abelian quantum gauge theories via differential cohomology

15:30 – 16:00 *break*

16:00 – 16:45 **Thomas-Paul Hack**
Quantization of the linearised Einstein-Klein-Gordon system on arbitrary backgrounds and the special case of perturbations in Inflation

16:45 – 17:15 **Marco Benini**
Optimal observables for gauge theories via cohomology with restricted support

17:15 – 17:45 **Giovanni Collini**
Fedosov quantization and Quantum Field Theory

- **Wednesday, May 21, 2014**

  09:30 – 10:15 **Detlev Buchholz**
  The quest for understanding in quantum field theory: A new perspective

  10:15 – 11:00 **Gandalf Lechner**
  Localization in Nets of Standard Spaces

  11:00 – 11:30 *coffee/tea break*

  11:30 – 12:15 **Jan Schlemmer**
  Towards covariant adiabatic renormalization on crossed product spaces

  12:15 – 14:00 *lunch break*

  14:00 – 14:45 **Karl-Henning Rehren**
  Boundary conditions and gauge transformations

  14:45 – 15:30 **Roberto Longo**
  Noncommutative Geometrical Aspects in Conformal Nets

  15:30 – 16:00 *break*

  16:00 – 16:45 **Stephan Hollands**
  Operator Product Expansion Algebra I

  16:45 – 17:15 **Sabina Alazzawi**
  Construction of O(N)-invariant nonlinear sigma-models

- **Thursday, May 22, 2014**

  09:30 – 10:15 **Jan Holland**
  Operator Product Expansion Algebra II

  10:15 – 11:00 **Pierre Martinetti**
  Grand symmetry spectral action and the Higgs mass

  11:00 – 11:30 *coffee/tea break*

  11:30 – 12:15 **Giuseppe Ruzzi**
  Nets of local algebras and gauge theories

  12:15 – 14:30 *lunch break*

14:30 – 15:15 **Christian Brouder**
On the main operations with distributions having a specified wavefront set

15:15 – 16:00 **Yoann Dabrowski**
Functional analytic properties of generalized Hormander spaces of distributions and generalized spaces of microcausal functionals

16:00 – 16:30 *break*

16:30 – 17:15 **Michael Duetsch**
Massive vector bosons: is the geometrical interpretation as a spontaneously broken gauge theory possible at all scales?

17:15 – 17:45 **Davide Pastorello**
Geometric Hamiltonian formulation of Quantum Mechanics on complex projective spaces

20:00 *Social Dinner*

- **Friday, May 23, 2014**

  09:30 – 10:15 **Yoh Tanimoto**
  Wedge-local fields in integrable models with bound states

  10:15 – 11:00 **Igor Khavkine**
  The Calabi complex: a case study in linear dynamical obstructions to isotony

  11:00 – 11:30 *coffee/tea break*

  11:30 – 12:15 **Pedro Lauridsen Ribeiro**
  Causal Wedges: a General Framework

  12:15 – 12:45 **Gennaro Tedesco**
  Multi-local transformations for Fermi fields on the circle

All lectures take place in the ESI Boltzmann Lecture Hall