Rigorous Quantum Field Theory in the LHC era

September 21 - October 1, 2011

Organized by Christian Jäkel, Christoph Kopper, Gandalf Lechner

- **Wednesday, September 21, 2011**
  10:00 – 11:00: Detlev Buchholz, University of Göttingen
  Infrared Problems and Sector Analysis. Old Wisdom and Recent Progress
  11:00 – 11:30: coffee break **11:30 – 12:30: Riccardo Guida**, Institut de Physique Théorique, CEA Saclay,
  All-order uniform bounds for the massless Euclidean $\phi 4$ -Theory
  12:30 – 14:30: lunch break
  14:30 – 15:30: Abdelmalek Abdesselam, University of Virginia
  Massless quantum field theory over the reals and p-adics, a probabilistic point of view (Part I)

- **Thursday, September 22, 2011**
  10:00 – 11:00: Abdelmalek Abdesselam, University of Virginia
  Massless quantum field theory over the reals and p-adics, a probabilistic point of view (Part II)
  11:00 – 11:30: coffee break
  11:30 – 12:30: Jacques Magnen, CPHT Polytechnique and CNRS
  Diagrams and Bounds for a Simple Group Field Theory Model
  12:30 – 14:30: lunch break
  14:30 – 15:30: Thomas Chen, University of Texas at Austin
  Mean field limits for interacting Bose gases and the Cauchy problem for the Gross-Pitaevskii hierarchies
  16:00 – 17:00: Detlev Buchholz, University of Göttingen
  Operator Algebras and Construction of Quantum Field Theories

- **Friday, September 23, 2011**
  10:00 – 11:00: Yves Sirois, LLR Polytechnique and CNRS
  Higgs Boson(s) and TeV Scale Physics at the LHC
  11:00 – 11:30: coffee break
  11:30 – 12:30: Andre Hoang, University of Vienna
  Soft-Collinear Effective Theory - a quantum field theory for jets at colliders
  12:30 – 14:30: lunch break
  14:30 – 15:30: Emery Sokatchev, University of Savoy and CERN
  Hidden symmetries of scattering amplitudes
  17:00 – 18:00: Erwin Schrödinger Lecture: Arthur Jaffe, Harvard University
  The Physics and Mathematics of Quantum Fields

- **Monday, September 26, 2011**
  10:00 – 11:00: Stefan Weinzierl, University of Mainz
  Precison calculations for the LHC
  11:00 – 11:30: coffee break
  11:30 – 12:30: Wojciech Dybalski, TU Munich
  Inclusive cross-sections in relativistic and non- relativistic QED

12:30 – 14:30: lunch break
14:30 – 15:30: Alessandro Pizzo, UC Davis
Solution of the Infrared Catastrophe Problem in non-relativistic QED
16:00 – 17:00: Claudio Dappiaggi, University of Pavia
On the quantization of Maxwell's equations in curved space-times

- **Tuesday, September 27, 2011**
  10:00 – 11:00: Karl-Henning Rehren, University of Göttingen
  AdS-CFT and the renormalization of interactions of fields with continuous mass
  11:00 – 11:30: coffee break
  11:30 – 12:30: Roberto Longo, University of Rome "Tor Vergata"
  Thermal States in CFT and Boundary QFT on the Interior of the Lorentz Hyperboloid
  12:30 – 14:00: lunch break
  14:00 – 15:00: Chris Fewster, University of York
  What makes a theory of physics the same in all spacetimes ?
  15:30 – 16:30: Henning Bostelmann, University of York
  Characterization of Local Operators in Factorizing Scattering Models

- **Wednesday, September 28, 2011**
  10:00 – 11:00: Jonathan Dimock, University of New York State
  The renormalization group according to Balaban
  11:00 – 11:30: coffee break
  11:30 – 12:30: Pronob Mitter, University of Montpellier
  Finite range renormalization group
  12:30 – 14:30: lunch break
  14:30 – 15:30: Ugo Moschella, University of Insubria
  Tachyons in the de Sitter universe

- **Thursday, September 29, 2011**
  10:00 – 11:00: Jacques Bros, Institut de Physique Théorique, CEA Saclay
  Two-point functions of interacting field theories in de Sitter spacetime and the production of unstable modes at small coupling
  11:00 – 11:30: coffee break
  11:30 – 12:30: Henri Epstein, IHES
  Hypergeometric identities from QFT on Anti-de Sitter space-time
  12:30 – 14:30: lunch break
  14:30 – 15:30: Bert Schroer, FU Berlin and CPPF Rio de Janeiro
  The foundational origin of integrability in quantum field theory

- **Friday, September 30, 2011**
  10:00 – 12:30: YOUNG RESEARCHERS' SESSION:
  10:00 – 10:30: Daniela Cadamuro, University of Göttingen
  Characterization of local operators in factorizing scattering models, part II
  10:30 – 11:00: Katarzyna Rejzner, University of Hamburg
  Gauge theories in the algebraic approach to perturbative quantization
  11:00 – 11:30: coffee break
  11:30 – 12:00: Christian Köhler, University of Vienna
  Infinite spin representations and deformations
  12:00 - 12:30: Albert Much, University of Leipzig
  Symplectic structures in quantum field theory

All lectures take place in the ESI Boltzmann Lecture Hall