

SONDERSEMINAR/SPECIAL SEMINAR
LMU/MPQ

am: Friday, April 15, 2015

Uhrzeit: 10:00 a.m. s.t.

spricht: Herr Dr. Michael Klatt
Karlsruhe Institute of Technology (KIT)
Institute of Stochastics
Englerstr. 2

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Thema: Morphometry of Random Spatial Structures in Physics

Ort: Chair Professor Theodor W. Hänsch,
Faculty of Physics LMU, Schellingstr. 4/IIIrd Floor
Discussion Room H 311

gez. Prof. T.W. Hänsch

Title:
Morphometry of random spatial structures in physics

Abstract:

From the large-scale structure of the universe to exotic states in nuclear matter: complex and disordered spatial structures appear ubiquitously on nearly all length scales in very different physical or chemical systems.

Often physical insight can best be obtained by a rigorous structure characterization.

How can we sensitively and comprehensively quantify the geometry of this variety of very different random spatial structures?

Such a versatile and rigorous shape analysis is provided by a family of intuitive structure characteristics, the so-called Minkowski functionals. We use them to analyze important mathematical models as well as exotic states of matter from nuclear physics to condensed matter systems.

They can also detect structural deviations and features in background noise.
This can be used from medical tomography to gamma-ray astronomy.