

ÚSTAVNÍ SEMINÁŘ

ve středu dne **2. prosince 2015** v **15:00**
v přednáškovém sále Fyzikálního ústavu AV ČR
na Slovance

Program:

Petr Hořava

UC Berkeley & LBNL

Surprises with Non-relativistic Naturalness

Abstract:

Some of the deepest theoretical puzzles about the observed Universe can be phrased as problems of Technical Naturalness. Motivated by non-relativistic gravity of the Lifshitz type, we investigate Technical Naturalness in non-relativistic systems, starting with simple ones not involving gravity. Surprisingly, even in such simplest systems we find many new phenomena, including towers of new universality classes of Nambu-Goldstone modes naturally protected from large quantum corrections by novel symmetries, with possible applications ranging from high-temperature superconductivity (and other areas of condensed matter physics), to effective field theory of cosmological inflation.

*After graduating from Charles University in Prague, **Petr Hořava** received his Ph.D. in 1991 at the Institute of Physics of the Czech Academy of Sciences in Prague. He was awarded the Robert McCormick Research Fellowship at the Enrico Fermi Institute at the University of Chicago, worked as a Research Associate at Princeton University, and won a Sherman Fairchild Senior Research Fellowship at Caltech, before joining the New High Energy Theory Center at Rutgers University in 2000 as an Associate Professor. In 1997, he was awarded the Junior Prize of the Czech Learned Society, and in 1999 he appeared on the list of top three scientists of the Czech Republic of the 90's. He joined the Physics Department at UC Berkeley in 2001. Currently, he is Professor of Physics at UC Berkeley and Director of the Berkeley Center for Theoretical Physics. He is also a senior staff member of the Physics Division at LBNL (Lawrence Berkeley National Laboratory).*

His research interests are focused on string theory, as a leading candidate for the quantum theory of gravity and unification. In recent years, string theory has been going through a revolutionary period, whose results changed our understanding of the theory and created new paradigms in other fields, ranging from pure mathematics, to quantum field theory, to particle phenomenology and cosmology. In 2009 he proposed a novel approach to quantizing gravity which uses concepts from condensed matter physics such as quantum critical phenomena.

Seminář bude přednesen v anglickém jazyce.

prof. Jan Řídký, DrSc.
ředitel