

# 凝縮系物理学インフォーマルセミナー

## Informal Condensed Matter Seminar

Location: Room 413, School of Science Bldg. 5 (理学 5 号館 413 号室)

Date: 13:00-14:30, Friday, 26 October 2012

## Metal-Insulator Transitions: From New Physics to Novel Materials

Speaker: **Prof. Stefan Kettmann**

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Abstract:

At Metal-Insulator Transitions the electrons are in a state which is intermediate between being extended and localized. These states are sparse and concentrated at random spots of high intensity. They are power law correlated both in energy and space. Interacting electrons in such states give rise to new phenomena, such as multifractal superconductivity and new critical Semimetal states. We give an overview of these recent developments, and give an outlook on potential applications.

In particular, we show results which indicate that new Materials may emerge close to Metal-Insulator Transitions, including high temperature ferromagnets and superconductors, and spintronic materials with minimal spin relaxation.