

IPMU Colloquium

- DATE December 14 (Wed), 2011, 15:30–17:00
- PLACE Lecture Hall, IPMU
- SPEAKER **Toshiyuki Kobayashi** (小林俊行) (The University of Tokyo)
- TITLE Global Geometry and Analysis on Locally Homogeneous Spaces
- ABSTRACT The local to global study of geometries was a major trend of 20th century geometry, with remarkable developments achieved particularly in Riemannian geometry. In contrast, in areas such as Lorentz geometry, familiar to us as the space-time of relativity theory, and more generally in pseudo-Riemannian geometry, surprising little is known about global properties of the geometry even if we impose a locally homogeneous structure. Further, almost nothing is known on global analysis on such spaces.
- Taking anti-de Sitter manifolds, which are locally modelled on AdS^n as an example, I plan to explain two programs:
1. (global shape) Is a locally homogeneous space closed?
 2. (spectral analysis) Does spectrum of the Laplacian vary when we deform the geometric structure?