

*Oklahoma State University*

# Colloquium

Title

*Global Analysis of Locally Symmetric Spaces with Indefinite-metric.*

Speaker: Toshiyuki Kobayashi, University of Tokyo, KAVLI (IMPU) visiting Yale University  
Date: May 3, 2019  
Time: 3:30 PM  
Room: MSCS 514

**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 pseudo-Riemannian geometry, familiar to us as the space-time of relativity theory, and more generally in pseudo-Riemannian geometry of general signature, surprising little is known about global properties of the geometry even if we impose a locally homogeneous structure.

In this colloquium, I plan to discuss two topics.

Global geometry: Existence problem of compact manifolds modeled locally on homogeneous spaces, and their deformation theory.

Spectral analysis: Construction of periodic eigenfunctions for the (indefinite) Laplacian, and stability question of eigenvalues under deformation of geometric structure.