Analysis on pseudo-Riemannian locally symmetric space

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I will discuss: 1. discontinuous groups Γ for symmetric spaces X with indefinite metric and 2. spectral analysis of the Laplacian on X/Γ.

In this situation, the Laplacian is no more an elliptic operator. Taking odd-dimensional anti-de Sitter manifolds as an example, I plan to illustrate some applications of Chern's ideas to the new construction of L2 spectrum which is stable under the deformation of discontinuous groups.