



## Mathematisches Kolloquium

Am Freitag, dem 15. Mai 2015 spricht um 14 Uhr c. t. im Hörsaal IV  
der Fachrichtung Mathematik (Gebäude E24)

**Prof. Dr. Victor Nistor**  
**University of Lorraine**

über das Thema:

### **An approach to analysis on non-compact and singular spaces using Lie algebras of vector fields**

*Abstract:* We will discuss some results on the analysis on a suitable class of non-compact manifolds whose analysis can be conveniently modelled by Lie algebras of vector fields on a compactification. More precisely, I will introduce a class of non-compact manifolds, called 'Lie manifolds' whose analysis resembles the analysis on compact manifolds. A Lie manifold  $M$  will have a compactification to a manifold with corners on which a Lie algebra of tangent vector fields is given subject to some additional conditions. One considers on these manifolds the differential operators generated by these vector fields and is interested in the properties of these operators. Examples include asymptotically Euclidean spaces, asymptotically hyperbolic spaces, manifolds with cylindrical ends, and many others. Lie manifolds can also be used to model the analysis on many singular spaces, including polyhedral domains. I will present two applications: one to the determination of the essential spectra of Laplace and Dirac operators on manifolds with poly-cylindrical ends and one to the well posedness of the Laplacian on polyhedral domains. I will also briefly discuss some connections to operator algebras and index theory.

Der Gast wird von Prof. Dr. Roland Speicher betreut.

Alle Interessenten sind zum Vortrag herzlich eingeladen.

Kaffee und Tee ab 13.45 Uhr im Konferenzraum der Mathematik (Erdgeschoss, Raum 1.03)

**Die Dozenten der Mathematik**