Prof. Dr. Daniel Hernandez Ruiperez (Salamanca)
Fourier-Mukai and Nahm transforms in Geometry

ZEIT:
23.6.2009, 15:30 Uhr

ORT:
HU Berlin
Institut für Mathematik
Rudower Chaussee 25, Raum 1.410
Berlin-Adlershof

The Fourier-Mukai transform was introduced by Mukai as a "Fourier transform" for line bundles. It enjoys many properties formally analogous to the Fourier transform, like the fact that it intertwines the tensor and the Pontrjagin products. From the point of view of complex differential geometry the Fourier-Mukai transform can be seen as the Nahm transform for connections and the properties of some index bundles reflect the structure of the transform bundles or sheaves. Since its introduction, the Fourier-Mukai transform has been a very important tool for the study of the properties of moduli spaces of sheaves and vector bundles. In its more general form, as a theory of integral functors on derived categories, the Fourier-Mukai transform has interesting applications to birational geometry and string theory on Calabi-Yau threefolds. In the talk we will give review all these aspects together with a view to possible new applications.

Kontakt:
Humboldt-Universität zu Berlin . Institut für Mathematik
SFB 647 . Unter den Linden 6 . 10099 Berlin
Tel. +49 30 2093 1804 . Fax. +49 30 2093 2727
sfb647@math.hu-berlin.de