Nonlinear detection of connections

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MEB 248

A connection is a geometric object that allows to parallel transport vectors along a curve in a domain. A natural question that often arises is whether one can recover a connection inside a domain from the knowledge of the parallel transport along a set of special curves running between boundary points of the domain. In this talk I will discuss this geometric inverse problem in various settings including Riemannian manifolds with boundary and Minkowski space. This problem is related to other inverse problems and is tackled with a range of techniques. During the talk I will explore some of these relations and techniques.

Gabriel Paternain is Professor of Mathematics at the Department of Pure Mathematics and Mathematical Statistics (DPMMS) at the University of Cambridge and a fellow of Trinity College. He obtained his PhD from the State University of New York at Stony Brook in 1991. After postdocs at the University of Maryland and the Max-Planck-Institute in Bonn, and a stint in Montevideo, Uruguay, he joined the University of Cambridge in 2001. He is known for his work on dynamical and geometrical aspects of Hamiltonian systems, in particular magnetic and geodesic flows.

Related Links:
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