

Inverse Problems for Connections, Part I
Gabriel Paternain, Cambridge University
Tuesday 1:30-3:00, Fields Institute, Room 230

ABSTRACT

I will discuss various recent results related to the inverse problem of determining a unitary connection from its parallel transport along geodesics.

The emphasis will be on surfaces and the results will be presented in two different but related settings: compact simple surfaces and closed Anosov surfaces. These two cases share the absence of conjugate points but their geodesic flows are in some sense opposite in terms of complexity.

A key player will be the attenuated ray transform for connections. I will also discuss applications of these ideas to the tensor tomography problem.