



Departamento  
de Matemática  
Aplicada



# Seminario de Matemática Aplicada

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## **Inverse Problem in Electrocardiography Via Factorization Method of Boundary Value Problems**

Electrocardiographic Imaging (ECGI) is a new imaging technique that noninvasively images cardiac electrical activity on the heart surface. In ECGI, a multi-electrode jacket records body-surface potential maps (BSPMs); then, using geometrical information from CT-scans and a mathematical algorithm, electrical potentials are reconstructed on the heart surface. The reconstruction of cardiac activity from BSPMs is an ill-posed inverse problem. In this work, we present an approach based on an invariant embedding method: the factorization method of boundary values problems. This method provides Neumann-Dirichlet and Dirichlet-Neumann operators on the heart using Riccati equations. They are used to solve the inverse problem set in a control framework.

**Organizado por el Grupo de Investigación MOMAT,  
en el marco del proyecto MTM2011-22658,  
con la colaboración del Instituto de Matemática Interdisciplinar (IMI)**

**Fecha: 20 de mayo de 2014 a las 11:00h.  
Lugar: Seminario Alberto Dou (sala 209)  
Facultad de CC Matemáticas, UCM**