Seminari Informal
de Matemàtiques de Barcelona

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Data:	dilluns 26 de novembre de 2012.
Horari:	12:15, *coffee break*; 12:30, xerrada.
Lloc:	Aula IMUB (al terrat), Facultat de Matemàtiques de la UB.
Títol:	Partial boundary value problems on finite networks.
Resum:	*Inverse boundary-value problems* were born to answer the question of whether it is possible to determine the conductivity of a body

by means of boundary measurements. These problems are exponentially ill-posed since its solutions are highly sensitive to changes in the boundary data. We are mainly interested on the discrete version of the problem, that is, the *inverse boundary-value problems on finite weighted networks*. The aim here is to study *partial* inverse boundary-value problems, which are characterized by the existance of a part of the boundary where no data is known.

Given a weighted network with conductances on the edges $\Gamma = (V, c)$, we fix a proper and connected subset $F \subset V$ and will consider a certain kind of boundary value problems in which the values of the functions and of their normal derivatives are known at the same part of the boundary of F and there exists another part of the boundary where no data is known. We determine when there is existance and/or uniqueness of solution on $\bar{F}$. For, it is mandatory to consider the Dirichlet-to-Neumann map of the network, its kernel and a local inverse of the matrix given by this kernel. We also observe that the kernel of the Dirichlet-to-Neumann map is a Schur Complement of the Schrödinger operator of the network.

Joint work with Ángeles Carmona and Andrés M. Encinas.

Qui som? El SIMBa és un seminari jove organitzat per estudiants de doctorat de matemàtiques. Està dirigit a estudiants de doctorat, de màster i, fins i tot, dels darrers cursos de grau. El nostre objectiu és donar a conèixer la recerca que estem fent, així com adquirir coneixements d'altres àrees de les matemàtiques diferents de la pròpia.

Més informació a `www.imub.ub.es/simba`.