iMAT INSTITUTO DE MATEMÁTICAS

SMA SEMINARIO DO DEPARTAMENTO DE MATEMÁTICA APLICADA

USC UNIVERSIDADE DE SANTIAGO DE COMPOSTELA FACULTADE DE MATEMÁTICAS

Optimal and Feedback Control of some Reaction-Diffusion Equations

Profesor Fredi Tröltzsch

Technische Universität Berlin

The optimal control of some systems of nonlinear reaction-diffusion equations is considered including several important equations of mathematical physics. In particular, equations are covered that develop traveling wave fronts, spiral waves, scroll rings, or propagating spot solutions. Well-posedness of the system, differentiability of the control-to-state mapping, and optimality conditions of first and second order are briefly sketched. In particular, the case of sparse optimal control is addressed. A novel application of pointwise state constraints is presented that prevent a propagating spot from hitting the boundary of the spatial domain. Finally, the optimization of time-delays in local and nonlocal Pyragas type feedback control is briefly discussed. Various numerical examples illustrate a great diversity of geometrical patterns and their control.

Fecha:	6 de noviembre de 2018.
Lugar:	Salón de Grados, Facultad de Matemáticas.
Duración:	1 hora.
Hora:	12:00h.

USC UNIVERSIDADE DE SANTIAGO DE COMPOSTELA · AGENCIA ESTATAL DE INVESTIGACIÓN · GOBIERNO DE ESPAÑA MINISTERIO DE ECONOMÍA, INDUSTRIA Y COMPETITIVIDAD · UNIÓN EUROPEA Fondo Social Europeo "O FSE inviste no teu futuro" · XUNTA DE GALICIA