Optimal and feedback control of systems of reaction diffusion equations

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Abstract: The talk surveys results in the optimal control of some systems of reaction diffusion equations, where wave type solutions such as traveling wave fronts, turning spiral waves, or moving localized spots appear. In particular, the control concentrates on the Nagumo and FitzHugh-Nagumo type equations in spaces dimensions up to three. Also the optimization of nonlocal Pyragas type feedback operators is sketched.

In all cases, the main goal of the optimization is to achieve desired spatio-temporal patterns. We briefly explain the analysis of optimality conditions and their numerical application. Figures and videos illustrate the results.

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