Optimal Control of Partial Differential Equations - Selected Results and Recent Trends

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In its first part, the talk introduces to some main results of the optimal control theory for partial differential equations. In particular, first-order necessary and second-order sufficient optimality conditions for semilinear elliptic and parabolic equations are discussed. The second part addresses applications of these principles of optimal control theory to the control of some reaction-diffusion equations. Moreover, recent trends in the theory are briefly outlined.