

Sussmann, H. J.**Regular synthesis for time-optimal control of single-input real analytic systems in the plane.**(English) [Zbl 0696.93026](#)

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The author examines time-optimal control for real analytic affine nonlinear systems of the form $\dot{x} = F(x) + uG(x)$. Here $x \in M$, a real analytic two-dimensional manifold, F and G are real analytic vector fields on M , and $|u| \leq 1$. The main result is Theorem 3.1 which states that for u in a class of C^k feedback control laws the maximum principle produces necessary and sufficient conditions for optimality.

MSC:[93B50](#) Synthesis problems[34C40](#) Ordinary differential equations and systems on manifolds[49K30](#) Optimality conditions for solutions belonging to restricted classes (Lipschitz controls, bang-bang controls, etc.)Cited in **13** Documents**Keywords:**[maximum principle](#); [necessary and sufficient conditions for optimality](#)**Full Text:** [DOI](#)