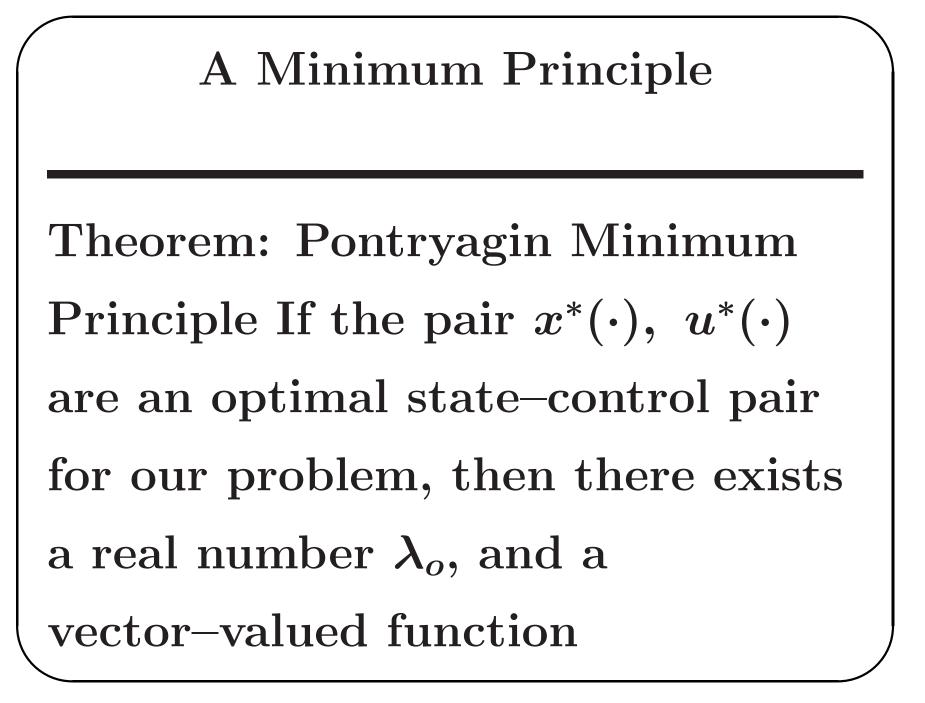


prescribed set  $\Theta^0 \subset \mathbb{R}^n$  given by the intersection of p smooth surfaces. That is,  $\Theta^0\equiv\{x\in R^n| heta_i^0(x)\!=\!0,i=1,\ldots,p\}$ ► Our modified optimal control problem is to find an admissible control  $u^*(\cdot)$  and the

corresponding state-trajectory  $x^*(\cdot)$  to yield a minimum value to the cost.



 $\lambda(\cdot): [0, t_1] \mapsto R^n$ , such that: a)  $\lambda_o \ge 0$ b)  $\dot{\lambda}(t) = -\frac{\partial H}{\partial x}^T$ c0)  $\lambda(t_0) \perp \Theta^0|_{x(t_0)}$  c0)  $\lambda(t_1) \perp \Theta^1|_{x(t_1)}$ d)  $H(\lambda_0, \lambda(t), x^*(t), u) \geq$   $H(\lambda_0,\lambda(t),x^*(t),u^*(t))=0$ 

for all  $v \in \Omega$ > An analytic statement of condition (c0) is that there are scalars  $\nu_i$ ,  $i = 1, \ldots, p$  such that  $\lambda(t_0) =$  $u_1 \ 
abla heta_1^0(x) + \ldots 
u_p \ 
abla heta_n^0(x).$