论文

Extended Casimir Approach to Controlled Hamiltonian Systems

Yuqian Guo, Daizhan Cheng

Institute of Systems Science, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, 100080, China

摘要   In this paper, we first propose an extended Casimir method for energy-shaping. Then it is used to solve some control problems of Hamiltonian systems. To solve the $H\infty$ control problem, the energy function of a Hamiltonian system is shaped to such a form that could be a candidate solution of HJI inequality. Next, the energy function is shaped as a candidate of control ISS-Lyapunov function, and then the input-to-state stabilization of port-controlled Hamiltonian systems is achieved. Some easily verifiable sufficient conditions are presented.

关键词   Casimir function, Energy,shaping, H∞ co

分类号

Extended Casimir Approach to Controlled Hamiltonian Systems

Abstract In this paper, we first propose an extended Casimir method for energy-shaping. Then it is used to solve some control problems of Hamiltonian systems. To solve the $H\infty$ control problem, the energy function of a Hamiltonian system is shaped to such a form that could be a candidate solution of HJI inequality. Next, the energy function is shaped as a candidate of control ISS-Lyapunov function, and then the input-to-state stabilization of port-controlled Hamiltonian systems is achieved. Some easily verifiable sufficient conditions are presented.

Key words   Casimir function   Energy   shaping   H∞ control   Input-to-state stabilization

通讯作者

扩展功能
本文信息
▸ Supporting info
▸ PDF(0KB)
▸ [HTML全文](0KB)
▸ 参考文献
服务与反馈
▸ 把本文推荐给朋友
▸ 加入我的书架
▸ 加入引用管理器
▸ 复制索引
▸ Email Alert
▸ 文章反馈
▸ 浏览反馈信息
相关信息
▸ 本刊中 包含"Casimir function, Energy,shaping, H∞ co"的 相关文章
▸本文作者相关文章
·   Yuqian Guo
·   Daizhan Cheng