

具有中间亏指数的线性哈密顿算子的点谱

郑召文, 胡玉峰

曲阜师范大学数学科学学院, 曲阜 273165

Point Spectrum of Linear Hamiltonian Operators with Intermediate Deficiency Indices

ZHENG Zhaowen, HU Yufeng

School of Mathematical Sciences, Qufu Normal University, Qufu, Shandong 273165

- 摘要
- 参考文献
- 相关文章

 全文: [PDF \(305 KB\)](#) [HTML \(1 KB\)](#) 输出: [BibTeX](#) | [EndNote \(RIS\)](#) [背景资料](#)

摘要 本文讨论具有任意亏指数 d 的自伴线性哈密顿算子点谱与对应的线性哈密顿系统的平方可积解之间的关系. 若对于某个实开区间中的任意点 λ , 系统总有 d 个线性无关解, 则它的任何自伴算子的点谱在这个开区间上是不稠密的.

关键词: 线性哈密顿系统 点谱 中间亏指数 自伴算子

Abstract: In this paper, the relationship between the number of square-integrable solutions of the linear Hamiltonian systems with real-values spectral parameter λ and point spectrum of linear Hamiltonian operators with arbitrary deficiency index d is discussed. If for all λ in an open interval I , there always exist d linearly independent square-integrable solutions, then the point spectrum of each self-adjoint extension of the minimal operator is nowhere dense in I .

Key words: linear Hamiltonian system point spectrum intermediate deficiency index self-adjoint operator

收稿日期: 2011-02-21;

基金资助: 国家自然科学基金(11171178, 11271225)及山东省自然科学基金(ZR2009AQ010)资助项目.

引用本文:

郑召文, 胡玉峰. 具有中间亏指数的线性哈密顿算子的点谱[J]. 应用数学学报, 2013, 36(3): 431-438.


ZHENG Zhaowen, HU Yufeng. Point Spectrum of Linear Hamiltonian Operators with Intermediate Deficiency Indices[J]. Acta Mathematicae Applicatae Sinica, 2013, 36(3): 431-438.


[1] Krall A M. Hilbert Spaces, Boundary Value Problems and Orthogonal Polynomials. Basel, Boston, Berlin: Birkhauser-Verlag, 2002

[2] Naimark M A. Linear Differential Operators. Ungar, New York: Springer-Verlag, 1968

[3] Weidmann J. Linear Operators in Hilbert spaces. Berlin, New York: Springer-Verlag, 1980

[4] 曹之江. 常微分算子. 上海: 上海科技出版社, 1986 (Cao Z J. Ordinary Differential Operators. Shanghai: Shanghai Science and Technology Press, 1986)

[5] Sun J, Wang A P, Zettl A. Continuous Spectrum and Square-integrable Solutions of Differential Operators with Intermediate Deficiency Index. *J. Funct. Anal.*, 2008, 255: 3229-3248 

[6] Shi Y M. On the Rank of the Matrix Radius of the Limiting Set for a Singular Linear Hamiltonian System. *Linear Algebra and its Applications*, 2004, 376: 109-123 

[7] Sun H Q, Shi Y M. Self-adjoint Extensions for Singular Linear Hamiltonian Systems. *Math. Nachr.*, 2011, 284(5-6): 797-814 

服务

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ E-mail Alert
- ▶ RSS

作者相关文章

- ▶ 郑召文
- ▶ 胡玉峰

[1] 吴德玉, 阿拉坦仓. 无穷维Hamilton算子的辛自伴性[J]. 应用数学学报, 2011, 34(5): 918-923.

[2] 王爱平, 孙炯, 高鹏飞. 具有正则型点的奇异微分算子的自共轭扩张[J]. 应用数学学报, 2010, 33(4): 632-639.