

ANALYSIS SEMINAR

Nonuniform μ -dichotomy and optimal ratio maps

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Abstract. Siegmund [3] proved that if two systems are kinematically similar, then they have the same (uniform) exponential dichotomy spectrum. In this talk, we unveil instances where nonautonomous linear systems manifest distinct nonuniform dichotomy spectra, despite admitting nonuniform kinematic similarity (contrary to the claims in [1, 4, 5]). Exploring the theoretical foundations of this lack of invariance, we introduce new concepts that offer a better understanding of this scenario [2].

References

- [1] Chu, J.; Liao, F-F.; Siegmund, S.; Xia, Y.; Zhang, W.: *Nonuniform dichotomy spectrum and reducibility for nonautonomous equations*, Bull. Sci. Math. 139 (2015), no.5, 538–557.
- [2] Gallegos C. A.; Jara N.: *Spectrum invariance dilemma for nonuniformly kinematically similar systems*, Math. Ann. (2024), <https://doi.org/10.1007/s00208-024-02969-8>.
- [3] Siegmund, S.: *Reducibility of nonautonomous linear differential equations*, J. London Math. Soc. (2) 65 (2002), no. 2, 397–410.
- [4] Silva, C. M.: *Nonuniform μ -dichotomy spectrum and kinematic similarity*, J. Differential Equations 375 (2023), 618-652.
- [5] Zhang, X.: *Nonuniform dichotomy spectrum and normal forms for nonautonomous differential systems*, J. Funct. Anal. 267 (2014), no.7, 1889–1916.