On the admissibility of some classes of state-delayed systems

Radosław Zawiski

University of Leeds
School of Mathematics

E-mail address: *R.Zawiski@leeds.ac.uk*

Abstract

Beginning with a short review of Hilbert space techniques used in the analysis of admissibility of infinite-dimensional dynamical systems, we will focus on state-delayed systems.

Using the "lifting" method [1] to reformulate the problem, we will firstly analyse a retarded delay system assuming only contraction property of the undelayed semigroup [2].

Next, we will turn our attention to problems where more can be said about the underlying semigroup. In particular, we will investigate diagonal systems [3].

These are partial results of the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 700833 supervised by Jonathan R. Partington.

Keywords: admissibility, state delay, contraction semigroup, diagonal system,

References

[1] A. Batkái and S. Piazzera (2005), *Semigroups for Delay Equations*, Research Notes in Mathematics, vol. 10, CRC Press.

[2] R. Zawiski and J. R. Partington (2018), *On the admissibility of retarded delay systems*, submitted, ArXiv:1709.08276.

[3] J. R. Partington and R. Zawiski (2018), *Admissibility of state delay diagonal systems with one-dimensional input space*, submitted, ArXiv:1805.04626