

A review of the book "Stability, control, and computation of time-delay systems. An eigenvalue based approach" by Wim Michiels and Silviu-Iulian Niculescu, Advances in Design and Control 27, SIAM, Philadelphia, PA, Second Edition, 2014.

This is the second edition of a highly successful book on the control of time-delay systems, with a special focus on spectral properties (linear and nonlinear eigenvalue problems) and uncertainty (exploiting methods from robust control). The contribution and novelty with respect to the first edition are clearly exposed in the preface, namely:

- a comprehensive account of robust and optimal controller design techniques, going much beyond stability analysis and stabilization;
- a significant amount of material on numerical methods (especially large-scale linear algebra and non-convex non-smooth optimization).

Recent works published in conferences and journals since the first edition of the book are carefully surveyed and put into perspective into updated technical sections. The book contains many bibliographic items (414), including historical references usually not cited elsewhere in the technical literature. The most technically advanced sections report on recent research results, but the introductory material of each chapter can also be used for a graduate course.

Written by leading experts in the field, the book has been a central reference in time-delay systems control since its first edition in 2007, and this second edition will only reinforce this position.

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