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Title. Stability of single-delay dynamical systems: the partial pole placement paradigm

Abstract. In this talk, I will discuss the stability of generic single-delay differential equations (DDEs) under the recent paradigm of partial pole placement. This technique, introduced by Niculescu et al. in 2015, investigates the property that the coexistence of the maximal number of real spectral values guarantees the realness of the rightmost spectral value. Therefore, by prescribing a finite number of real roots of the characteristic function, we can ensure that the infinite number of remaining roots are dominated by the rightmost real one. In particular, this technique can be used to prescribe the decay rate of the solutions of the DDE. In this talk, I will give an overview of the existing results and of ongoing work.