

# *QR* and *SVD* Methods for Spectral Analysis of Linear Differential-algebraic Equations

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**Abstract:** Recently numerical methods based on smooth *QR* and *SVD* factorizations for approximating spectral intervals and associated leading directions have been extended from ordinary differential equations (ODEs) to linear time-varying differential-algebraic equations (DAEs). In this talk, first we give an overview on these numerical methods. Then, we discuss the extra difficulties arising with the methods for DAEs. Finally, we make a comparison between the *QR*- and the *SVD*-based algorithms. Numerical experiments are given for illustration.

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