

ON A SPECTRAL PROBLEM FOR CERTAIN DIFFERENTIAL ALGEBRAIC EQUATIONS OF INDEX 1

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In this talk, several results described in [1] will be discussed. A self-adjoint linear homogeneous differential algebraic equation of index 1 is considered. One of the matrices occurring in the system depends on a spectral parameter (SP), in general, non-linearly. The self-adjoint homogeneous boundary conditions also may depend on the SP. We deal with the case when the dependence of problem data on the SP is of monotone type. A method is proposed and analyzed for computing the number of eigenvalues on a given interval of SP; this number takes the multiplicities into account. In the case when the boundary conditions are independent of the SP, an index, i.e. a serial number, is associated with each eigenvalue. A method for computing the eigenvalue with a prescribed index is given.

The results are closely related to ones considered in [2,3].

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REFERENCES

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