

NUMERICAL APPROXIMATION OF RIGOROUS ENCLOSURES FOR THE SPECTRUM OF J -SELF-ADJOINT OPERATORS

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The aim of this theme is to devise strategies for computing rigorous (hopefully sharp) bounds/enclosures for the spectrum of J -self-adjoint operators by means of projected space methods. The theory of computation for spectra of self-adjoint operators is classical and well developed. J -self-adjoint operators share many properties with their self-adjoint counterpart. I am interested in discussing to what extent general strategies for numerically estimating spectra of J -self-adjoint operators can be devised.

Open problems:

- i) Computation of rigorous rough enclosures for J -self-adjoint operators, taking into account the structure of the conjugation J into the projection scheme.
- ii) Computation of sharp (numerically relevant) enclosures in specific or generic cases.
- iii) Impact in the study of evolution problems for J -self-adjoint operators.