Contribution ID: **4** Type: **Talk**

Spectral approximation and generalized eigenvalue problem in operator preconditioning

Tuesday 27 May 2025 09:00 (30 minutes)

This contribution will address relationship between spectra of preconditioned self-adjoint PDE operators associated with boundary value problems and their approximations using generalized matrix eigenvalue problems arising from discretization. We will recall several results from operator theory literature, compare them with results on the generalised eigenvalue problem in the numerical PDE setting, and discuss the issue of spectral polution. Relationship between spectra of infinite dimensional operators and eigenvalues of the associated finite matrices will be illustrated using second order self-adjoint PDE operators.

Author: STRAKOŠ, Zdeněk (Charles University Prague)

Presenter: STRAKOŠ, Zdeněk (Charles University Prague)

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