Approximation of Stieltjes matrix functions via rational Gauss-type quadrature rules

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This talk is concerned with the inexpensive evaluation of expressions of the form $I(f) = v^T f(A)v$, when A is a large symmetric positive definite matrix, v is a vector, and $f(t)$ is a Stieltjes function. We are interested in the situation when A is too large to make the evaluation of $f(A)$ practical. Approximations of $I(f)$ are computed with the aid of rational Gauss quadrature rules. Error bounds or estimates of bounds are computed with rational Gauss-Radau or rational anti-Gauss rules. This talk presents joint work with J. Alahmadi, M. Pranić, and M. M. Spalević.
