

Observations regarding single preconditioners for sequences of shifted linear systems

Jens Saak¹

Model order reduction of linear time-invariant systems is a rich source for all kinds of shifted linear systems. Moment matching methods employ rational Krylov subspaces, the transfer function is a rational matrix function and also methods for the computation of system Gramians such as the low-rank alternating directions implicit iteration use shifted linear systems in every step. In this contribution we investigate the specific structures of these shifted linear systems and discover cases where one preconditioner is sufficient for a sequence of those linear systems.

¹Max Planck Institute for Dynamics of Complex Technical Systems
saak@mpi-magdeburg.mpg.de