Charles Van Loan
Cornell University

Numerical Linear Algebra Issues Underlying a Tensor Network Computation

A Jacobi type method is presented for computing the smallest eigenvalue and associated eigenvector of a very large Hamiltonian that is a highly structured summation of Kronecker products. The vector iterates are represented in compressed form using tensor networks. Updates involve a succession of orthogonal matrix manipulations and projections. The application is an occasion to think about the message of numerical linear algebra when it is applied in a tensor setting.

Joint Work with Stefan Ragnarsson.