



# CSC Seminar

## SPEAKER

**Eda Oktay**

Charles University in Prague / TU Chemnitz

## TITLE

**Mixed Precision Rayleigh Quotient Iteration for Total Least Squares Problems**

## ABSTRACT

With the recent emergence of mixed precision hardware, there has been a renewed interest in its use for solving numerical linear algebra problems fast and accurately. The solution of total least squares problems, i.e., solving  $\min_{E,f} \|[E, f]\|_F$  subject to  $(A + E)x = b + f$ , arises in numerous application areas. This requires finding the smallest singular value and corresponding right singular vector of  $(A, b)$ , which is challenging when  $A$  is large and sparse. An efficient algorithm for this case due to Björck et al. is based on Rayleigh quotient iteration coupled with conjugate gradient preconditioned via Cholesky factors. In this talk, we present a mixed variant of this algorithm and several numerical experiments.

**Tuesday, March 28, 2023 at 2 pm**  
**seminar room Prigogine**