IV. International Conference on Mathematics and its Applications in Science and Engineering

[ICMASE 2023]

Title: Recent developments in computing matrix functions with the double exponential formulas

Abstract: Matrix fractional powers, matrix logarithms, and matrix exponentials are examples of matrix functions, which arise from a rich variety of applications such as fractional partial differential equations, control theory, lattice quantum chromodynamics, and quantum information.

Among many approaches to computing matrix functions, we have focused on integral representations of matrix functions and solved them using numerical integration formulas. This talk will describe these recent developments in our numerical algorithms.