

THE UNIVERSITY



OF HONG KONG

*Institute of Mathematical Research
Department of Mathematics*

Computational Science Seminar

A geometric Newton-CG method for constructing a nonnegative matrix with prescribed realizable spectrum

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Abstract

In this talk, we consider the inverse eigenvalue problem of finding a nonnegative matrix such that it has the prescribed realizable spectrum. We reformulate the inverse eigenvalue problem as an under-determined constrained nonlinear matrix equation over several matrix manifolds. Then we propose a geometric Newton-CG method for solving the nonlinear matrix equation. The global and quadratic convergence of the proposed method is established under some assumptions. We also extend the proposed method to the case of prescribed entries. Finally, numerical experiments are reported to illustrate the efficiency of the proposed method.

Date:	December 14, 2018 (Friday)
Time:	10:00 - 11:00am
Venue:	Room 309, Run Run Shaw Bldg., HKU

All are welcome