



## Departmental Seminar

### Quaternion Matrix and Tensor Methods with Application in Polarization Images

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#### **Abstract**

Polarization is a characteristic of transverse waves and represented by Stokes parameters. Analysis of polarization states can reveal valuable information about the sources. This talk will focus on two problems of color polarization images: determining the critical characteristics; finding a fast and efficient representation.

To determine the critical characteristics of polarization images, we propose a novel factorization called separable quaternion matrix factorization (SQMF) and give a heuristic algorithm to solve it. To find an efficient representation of polarization images, inspired by tensor singular value decomposition, we study a novel block-diagonalized form to propose quaternion tensor singular value decomposition (QT-SVD). Numerical experiments are given to demonstrate the effectiveness of the methods.

Date:	February 15, 2023 (Wednesday)
Time:	10:15 – 11:15am
Venue:	Room 210, Run Run Shaw Bldg., HKU

*All are welcome*