

### Matrix spaces as a linear algebraic analogue of graphs

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University of Technology Sydney**



**Date: 20 Sept 2017 (Wednesday)**  
**Time: 3.30pm – 4.30pm**  
**Venue: MAS Executive Classroom 2 #03-07,  
School of Physical and Mathematical Sciences**

### Abstract

In the last few years, two research projects of mine (joint with collaborators) suggest that it is fruitful to view linear spaces of matrices as a linear algebraic analogue of graphs. In this talk I will first formally propose such an analogue, and then review how this helps in some decades-old problems from theoretical computer science and mathematics. We will see how this serves as a platform for interactions among algorithm design, combinatorics, and algebraic geometry. Finally I will mention some future directions.

Based on joint works with Gabor Ivanyos, K. V. Subrahmanyam, and Yinan Li.

### Speaker Biography

Youming Qiao obtained his PhD in computer science from the Institute for Interdisciplinary Sciences, Tsinghua University in 2012. His advisor was Andrew Yao. Before that, he obtained his bachelor's degree in computer science from Tsinghua University. After serving as a postdoc in the Centre for Quantum Technologies, National University of Singapore, he is currently a senior lecturer at the Centre for Quantum Software and Information, University of Technology Sydney.

**Host: Dr Bei Xiaohui**

**Division of Mathematical Sciences, School of Physical and Mathematical Sciences**