



# THE UNIVERSITY OF CHICAGO

## COMPUTATIONAL AND APPLIED MATHEMATICS COLLOQUIUM

---

KE YE

Academy of Mathematics and Systems Science  
Chinese Academy of Sciences

### Tensor Ranks with Applications to Complexity Theory

THURSDAY, October 11, 2018, at 4:00 PM  
Jones 226, 5747 South Ellis Avenue

#### ABSTRACT

This talk consists of two parts. In the first part, I will review various notions of tensor ranks and present some of our new results on these ranks. In the second part, I will first discuss the connection between tensor ranks and the computational complexity theory. In particular, I will concentrate on the complexity of the matrix-vector/matrix-matrix multiplication. If time permits, I will exhibit some numerical algorithms for small size matrix multiplication obtained by this method.

---

#### Organizers:

Daniel Sanz-Alonso, Department of Statistics, [sanzalonso@uchicago.edu](mailto:sanzalonso@uchicago.edu)  
CAM Colloquium URL: <https://cam.uchicago.edu/seminars/colloq/index.shtml>.

For further information and inquiries about building access for persons with disabilities, please contact Zellenia Harris, [zelleniah@uchicago.edu](mailto:zelleniah@uchicago.edu). If you wish to subscribe to our email list, please visit the following website: [https://lists.uchicago.edu/web/subscribe/cam\\_colloquium/](https://lists.uchicago.edu/web/subscribe/cam_colloquium/).