



THE UNIVERSITY OF CHICAGO

Departments of Computer Science, Mathematics, Statistics and the Computation Institute
SCIENTIFIC AND STATISTICAL COMPUTING SEMINAR

KE YE

Department of Statistics
University of Chicago

Dimension of Tensor Network States and G-Ranks Of Tensors

THURSDAY, November 17, 2016 at 4:00 PM
226 Jones Laboratory, 5747 S. Ellis Avenue
Host: Lek-Heng Lim

ABSTRACT

Tensor network states (TNS) are tensors associated to graphs. TNS are used to study quantum systems in condensed matter physics. In this talk, we will first introduce the motivation and applications of TNS, then we will define tensor network states and give some examples, including tensor trains (TT) and matrix product states (MPS). Next we will discuss the dimension of the set of tensor network states associated to a graph. Finally, for any graph G , we will define the notion of G -ranks which generalizes the rank of matrices and we will show that the G -rank is unique if G is a tree. If time permits, we will also discuss some properties of G -ranks.

This talk is based on a joint work with Lek-Heng Lim.

Organizers:

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