

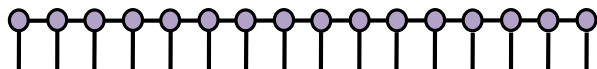
Perimeter Institute, August 24-29 2015
Mathematica Summer School

Lectures on Tensor Networks, Guifre Vidal (Perimeter Institute)

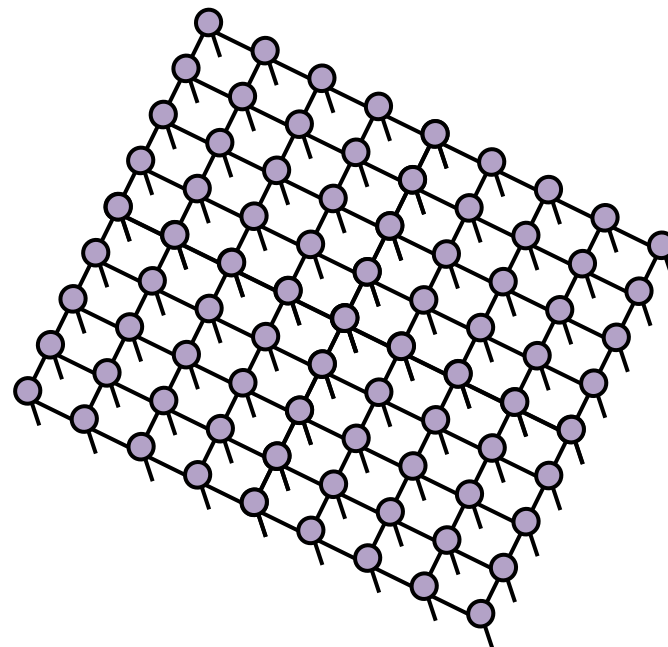
- 1- Tensor networks and many-body entanglement
Matrix product state (MPS)
- 2- Multi-scale entanglement renormalization ansatz (MERA)
- 3- Tensor network renormalization (TNR)

Slides used during the lectures
(Tuesday 25th - Thursday 27th 2015)

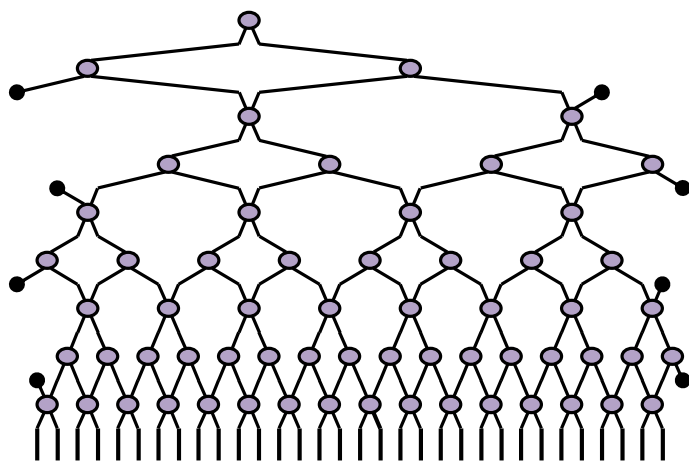
LECTURE 1



Matrix product state
MPS

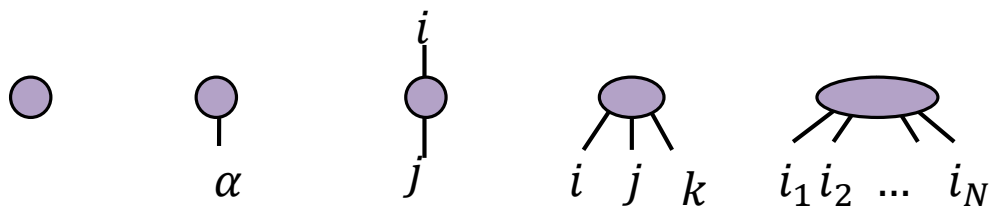


Projected entangled-pair state
PEPS

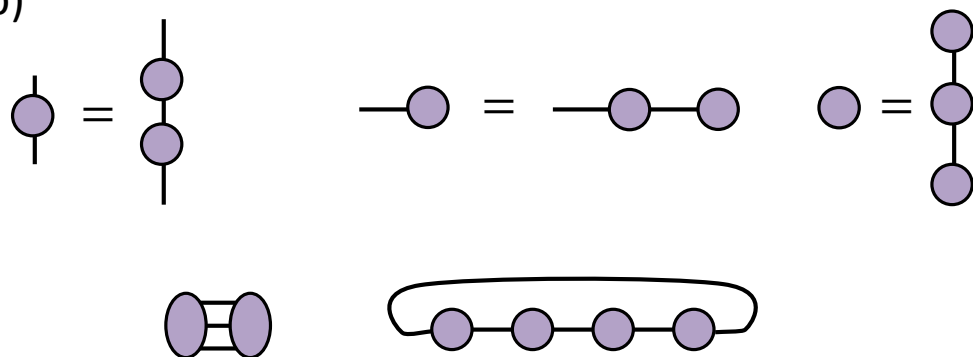


Multi-scale entanglement renormalization ansatz
MERA

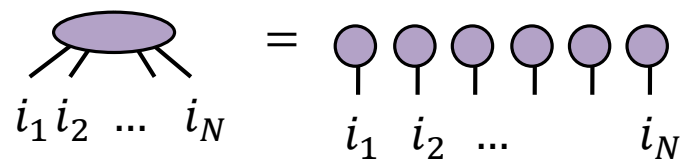
(a)



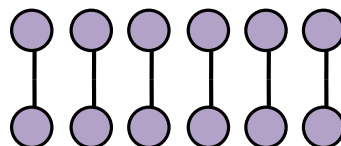
(b)



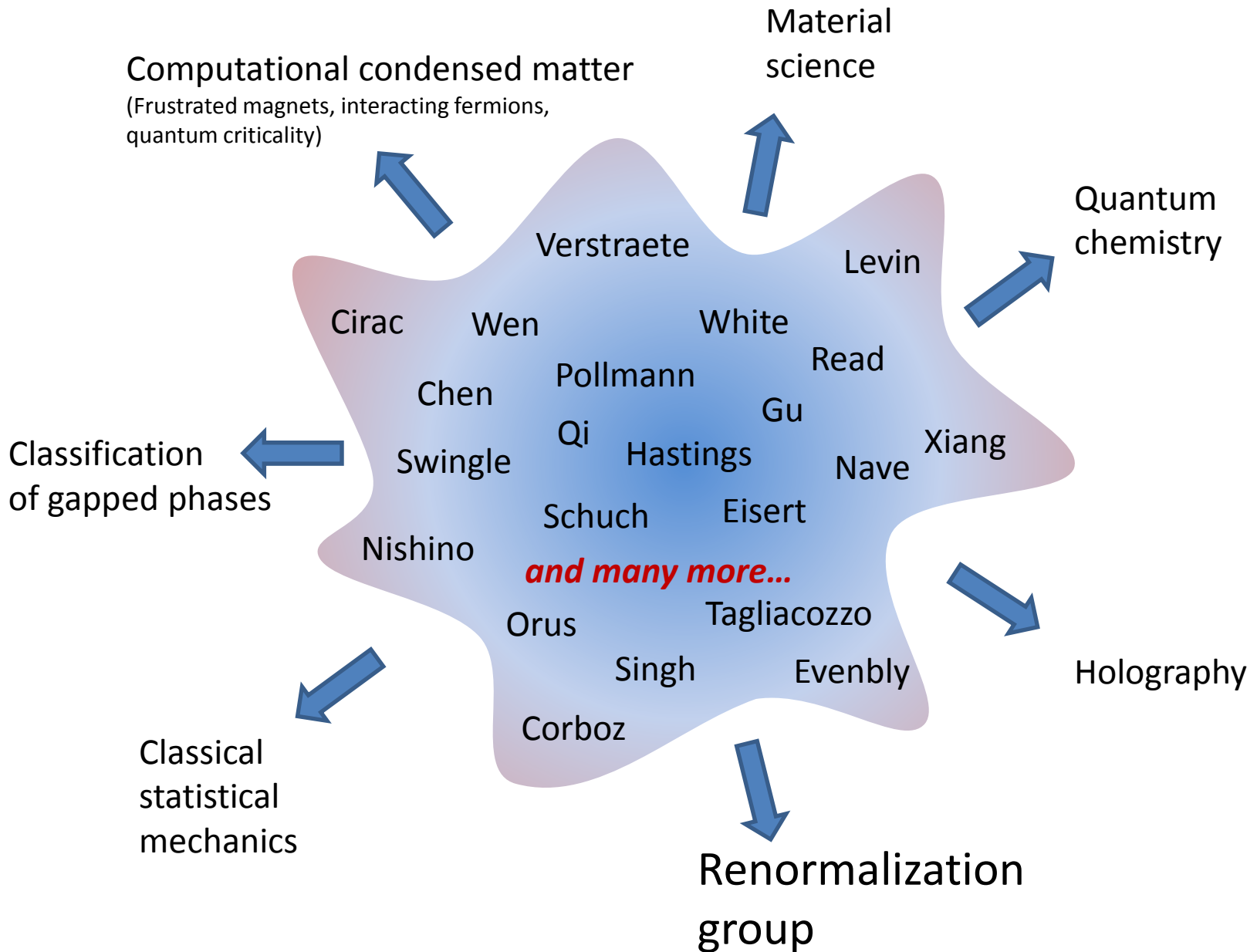
product (unentangled) state



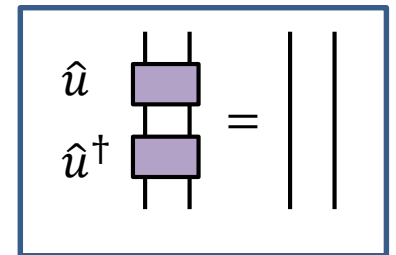
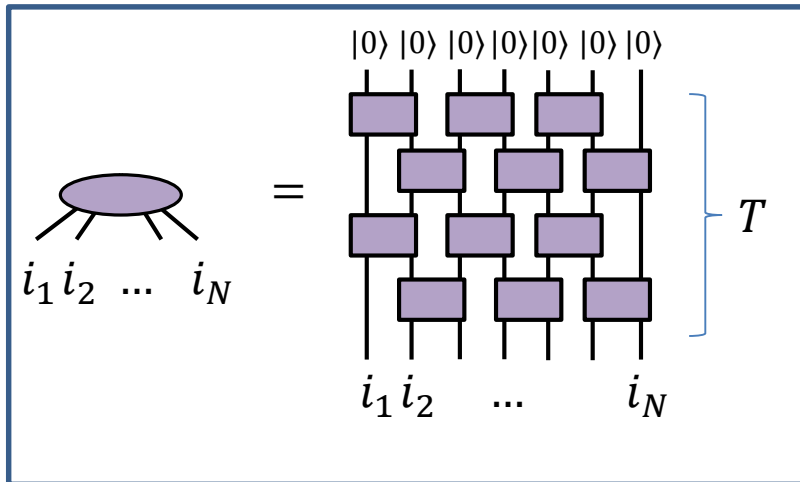
$\langle \Psi | \Psi \rangle =$



TENSOR NETWORKS



Example of tensor network: Quantum Circuit



Norm

