



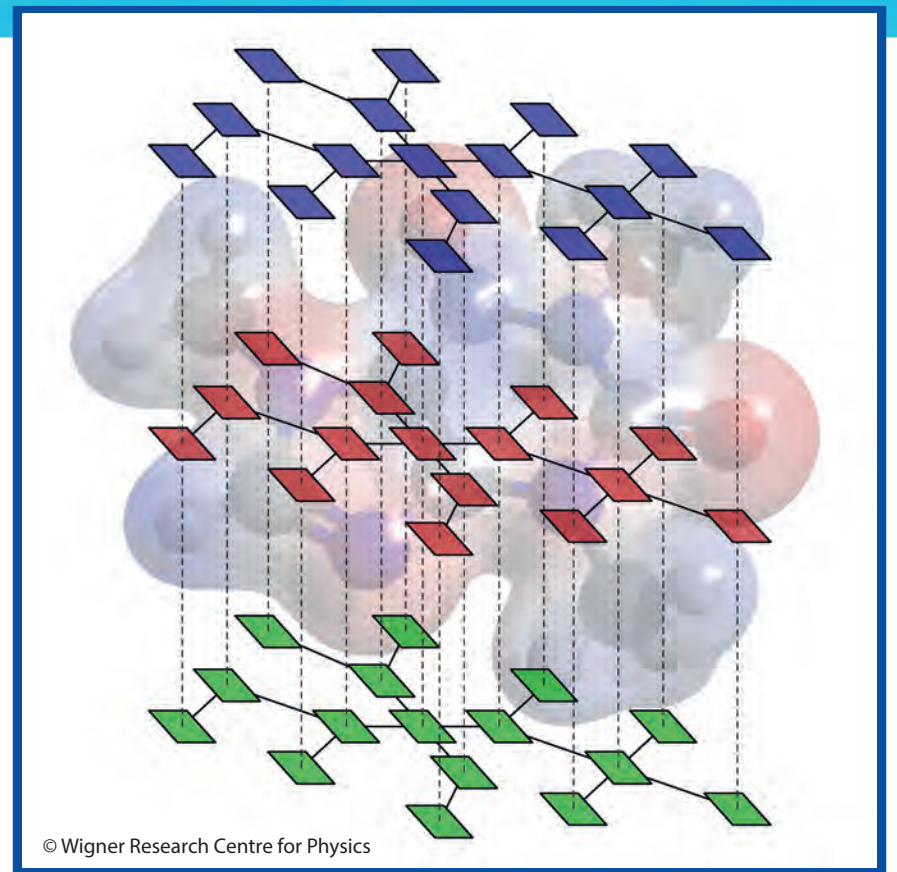
# Tensor Product Methods for Strongly Correlated Molecular Systems

## Virtual Focus Workshop 08 - 11 March 2021

Due to enormous developments in the past two decades, tensor network state methods have already matured to provide a variety of tools to attack highly challenging strongly correlated electronic problems in quantum chemistry that are intractable by standard techniques. The aim of the workshop is to bring together theoretical chemists, condensed matter physicists and mathematicians, to intensify the exploration of this continuously growing new field of research.

### Key questions

- What are the most appropriate existing tensor network state structures, or variants to be developed, for treating strongly correlated molecules?
- What is the state of the art for different multireference generalizations of conventional single reference methods like CC or DFT?
- How to utilize concepts of quantum information theory to boost the performance of tensor network state methods, and to obtain information on correlation patterns and chemical bonds in molecules?
- How to boost the performance of tensor network state methods by combining them with conventional methods?
- How to treat electron dynamics and time dependent phenomena for molecules via tensor network state methods?



### Invited speakers:

A. Alavi (DE)  
 G. Booth (UK)  
 G. K. Chan (US)  
 J. Eisert (DE)  
 E. Fromager (FR)  
 K. Hallberg (AR)  
 S. Knecht (CH)  
 K. Kowalski (US)  
 S. Kvaal (NO)  
 N. J. Mayhall (US)  
 J. Pittner (CZ)  
 Ch. Schilling (UK)  
 S. Sharma (DE)  
 F. Verstraete (BE)  
 S. R. White (US)  
 T. Yanai (JP)

### Scientific coordinators:

Örs Legeza  
 Budapest, Hungary

Markus Reiher  
 Zurich, Switzerland

Reinhold Schneider  
 Berlin, Germany

### Organisation:

Claudia Domaschke &  
 Maria Voigt  
 MPIPKS Dresden

Applications received before 15th February 2021 are considered preferentially.

Applications are welcome and should be made by using the application form on the event's web page. The number of attendees is limited.

#### For further information please contact:

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