Contribution ID: **6** Type: **talk**

Constant path integral contour shifts

Thursday 23 January 2025 14:00 (45 minutes)

The Fermi-Hubbard model suffers from a severe sign problem, both for non-zero chemical potentials and on non-bipartite lattices. Over the years, considerable progress has been made in alleviating the sign problem by deforming the integration contour of the path integral into the complex plane. In this talk, I am going to present a surprisingly simple and yet powerful contour deformation by means of an optimised constant shift. First results for the molecule Perylene at finite doping are included. I will also discuss preliminary results using fermionic augmented tree tensor networks which are inherently sign problem free.

Author: OSTMEYER, Johann (University of Bonn)

Co-authors: BERKOWITZ, Evan (Forschungszentrum Jülich); GÄNTGEN, Christoph (FZ Jülich); KRIEG, Stefan; LUU, Thomas (Forschungszentrum Jülich); PEDERIVA, Giovanni (Michigan State University); RODEKAMP, Marcel; SCHNEIDER, Manuel (Deutsches Elektronen-Synchrotron DESY); SULADZE, Archil (University of Bonn); URBACH, Carsten (University of Bonn)

Presenter: OSTMEYER, Johann (University of Bonn)

Session Classification: Thursday afternoon