

# 11th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions



Beitrag ID: 287

Typ: Poster

## Stabilizing complex Langevin for real-time gauge theory

*Dienstag, 28. März 2023 18:15 (2 Stunden)*

Direct computations of QCD real-time observables like transport coefficients are very difficult due to the infamous sign problem. The complex Langevin (CL) method is a promising approach to overcome it by using a real-time formulation of QCD on a complex time contour. Studying  $SU(N_c)$  gauge theories with CL, we find that current stabilization techniques are insufficient to obtain correct results. Therefore, we introduce a novel anisotropic kernel that enables CL simulations on discretized time contours. Applying it to  $SU(2)$  pure gauge theory in 3+1 dimensions, we obtain unprecedentedly stable results that may allow us to calculate real-time observables from first principles in the near future.

### Experiment/Theory

Theory/Phenomenology

### Affiliation

TU Wien

**Hauptautoren:** BOGUSLAVSKI, Kirill (TU Wien); HOTZY, Paul (TU Wien); MUELLER, David (TU Wien)

**Vortragende(r):** BOGUSLAVSKI, Kirill (TU Wien)

**Sitzung Einordnung:** Poster Session

**Track Klassifizierung:** Early time dynamics and nuclear PDFs