

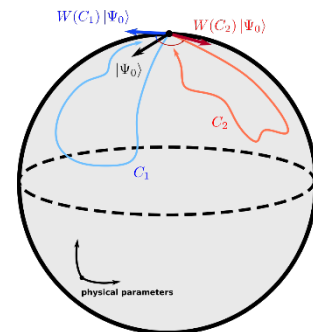
9th December 2021, 3:00 pm

Julien Pinske

Quantum Optics of Macroscopic Systems

Non-Abelian Holonomies for Quantum Computation

Quantum computation is among the most promising developments in modern physics. It utilises the fact that the nonclassical nature of certain quantum systems allows for shortcuts in algorithmic evolutions. However, the number of astonishing applications seems to be evenly matched by the number of technical challenges one encounters when faced with the task of building an actual quantum computer. In this seminar, an inherently fault-tolerant way of quantum information processing is presented. More specifically, computations are carried out by means of non-Abelian Berry phases (holonomies). Theory is illustrated on an integrated photonic structure giving rise to highly symmetric quantum codes on which universal computation could be based in a robust fashion.



Parameter variations inducing quantum holonomies

Talk: English

Slides: English

Location: Great Lecture Hall, HS1, Institute for Physics, Albert-Einstein Str. 24

Hybrid-Meeting: <https://uni-rostock-de.zoom.us/j/67191822515?pwd=UTVJSXVPaDVLV0ZSZW9LR3NRVWF2UT09>