Contribution ID: **36**   Type: **Contribution from scientific community**

Quantum Computation of Thermal Averages in the Presence of a Sign Problem

We illustrate the application of Quantum Computing techniques to the investigation of the thermodynamical
properties of a simple system, made up of three
quantum spins with frustrated pair interactions and affected by a hard sign problem
when treated within classical computational schemes.
We show how quantum algorithms completely solve the problem, and discuss how
this can apply to more complex systems of physical interest.

Primary authors: CLEMENTE, Giuseppe (PI); CARDINALI, Marco (Istituto Nazionale di Fisica Nucleare); BON-ATI, Claudio (PI); CALORE, Enrico (FE); COSMAI, Leonardo (BA); D'ELIA, Massimo (PI); GABBANA, Alessandro (University of Ferrara); ROSSINI, Davide (PI); SCHIFANO, Sebastiano (FE); TRIPICCIONE, Raffaele (FE); VADACCHINO, davide (INFN Sezione di Pisa)

Presenter: CARDINALI, Marco (Istituto Nazionale di Fisica Nucleare)

Session Classification: Session III

Track Classification: Contributions from the scientific community