



Contribution ID: 67

Type: **Poster.**

## **ROTOGP: a classical optimizer for Variational Quantum Simulation using Gaussian Process Models**

Variational Quantum Simulation (VQS) is one of the most promising techniques for near-term quantum computing. However, its performance is strongly affected by the ability of classical optimizers to deal with noise. In this context, I will first introduce Gaussian Process Models (GPM), a well-established machine learning technique to fit functionals with error bars, and then show how they can be applied to VQS. Furthermore, I will present ROTOGP, a novel optimizer exploiting GPM and a simple strategy to increase the number of measurement shots during the optimization. I will show results on some ground state preparation benchmark problems, using different circuit ansaetze, and compare with other competitive optimizers in the literature.

### **Abstract category**

Quantum Computing

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