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VanQver: Variationally and Adiabatically Navigated Quantum Eigensolver

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While quantum algorithms are believed to be more powerful than classical algorithms, the computational power of near term quantum devices is highly restricted because of noise.
In order to overcome the limitations and exploit quantum advantages on noisy quantum devices, it is important to develop algorithms which complete each run of quantum computation within a short coherence time.
Quantum-classical hybrid methods have attracted a lot of attention for this purpose.

In this talk, a variational method (VanQver) is introduced in adiabatic quantum computation.
In particular, the efficiency of the algorithm is demonstrated in simulating molecular systems. It is shown that each run time required to reach chemical accuracy is reduced by two or three orders of magnitude compared to that of the standard AQC.

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