



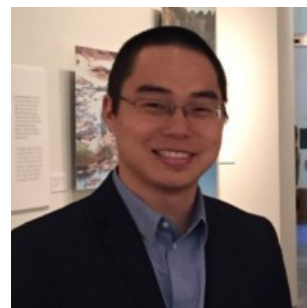
**Pacific  
Northwest**  
NATIONAL LABORATORY

## COMPUTING@PNNL SEMINAR SERIES PRESENTS

### **Tyler Takeshita**

Quantum Technology Lead

Mercedes-Benz Research and Development North America



## **Quantum Computing for Quantum Chemistry: A Reduced Resource Approach**

The progress of quantum chemistry on quantum computers has been rapid over the last few years. As quantum computers continue to evolve so do the quantum chemical algorithms aimed at demonstrating the power of these devices for interesting chemical problems. However, with the limited number of qubits and short coherence times of the current quantum computers, it remains a challenge for these chemical simulations to achieve the desired accuracy. Traditionally, increasing the accuracy of these calculations requires a substantial increase in the number of qubits and circuit depth. This talk will discuss recent work at Mercedes-Benz that strives to increase the accuracy of quantum chemical simulations on quantum computers while taking into account the limited quantum resources.

Tyler Takeshita is the Quantum Technology Lead at Mercedes-Benz Research and Development North America, a Daimler company. The Quantum Technology Team collaborates with IBM and Google to design novel quantum algorithms for the potential application of this technology to key problems in optimization, machine learning, materials science and chemistry. Tyler received his PhD in Chemistry from the University of Illinois at Urbana-Champaign specializing in theoretical quantum chemistry. He went on to be a postdoctoral fellow in the College of Chemistry at the University of California, Berkeley.

**Tuesday, July 21**

**11:00 – 12:00**

**Zoom Meeting**

