

# Computing@PNNL

## SEMINAR

### *Advancing Scientific Discovery with Quantum Computing*

**Travis Humble, Ph.D.**

Distinguished Scientist

Quantum Computing Institute, Director  
Oak Ridge National Laboratory



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Quantum computing promises new approaches to solving difficult computational problems by using the principles of quantum mechanics. At ORNL, scientists are using these principles to solve scientific problems by taking advantage of recent developments in quantum computing hardware and software.

In this talk, Dr. Humble will present how the team at ORNL is developing algorithms for simulating quantum mechanical systems and applying them to application-specific problems in chemistry, nuclear physics, and applied mathematics. With these applications, they have developed a quantum computing ecosystem that highlights the interdisciplinary effort needed to translate scientific computing to new hardware platforms.

Alongside software applications and hardware infrastructure, he also will discuss how to measure performance in quantum computers, the challenges looming for near-term demonstrations, and the milestones expected on the way toward new scientific discoveries with quantum computing.

**Host:**

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