

# Kyle Wendt

"Kyle"



**Graduate Institution:** The Ohio State University

**Location:** Columbus, Ohio

**Graduate Discipline:** Nuclear Physics

**Hometown:** Rockford, Illinois

## Research Interests:

*Low energy nuclear physics.. Quantum few/many-body systems. Renormalization group. Similarity renormalization group and its application to the nuclear physics. Effective field theory. Quantum montecarlo. Lattice methods. Application of supercomputers to nuclear physics and quantum few/many-body systems.*

## About me:

*My current primary research involvement is in the application of the similarity renormalization group (SRG) to low energy nuclear physics. Nuclear physics is an example of a quantum many body system. Such systems are extremely difficult to solve both formally and numerically since they involve a large number of degrees of freedom. Combine this with complicated nucleon interactions and computation becomes unfeasible. SRG has shown promise to make the interactions simpler while preserving the desired physics, making these many body computations tractable. Another project I am working in on the application of graphics processing units (GPU) to physics calculations. Quantum many-body systems often require large computers, make high precision calculation expensive and time consuming. Recent developments in GPUs show promise in allowing the calculations to be performed without the use of a super computer. I have been working on implementing and testing certain quantum montecarlo algorithms using GPUs. This will permit more precise calculations to be done on smaller, cheaper, more power efficient hardware. Regarding aspects outside of research, I have the long term of goal of being a professor at a research institution. My interests outside of physics include stargazing/amateur astronomy, computer science, bird watching, reading and watching science fiction.*



U.S. DEPARTMENT OF  
**ENERGY**

Office of  
Science