



As part of an on-going effort in advanced laser systems, Clemson is seeking a cohort of graduate students and post-doctoral scholars to join our team.

Students and scholars must be US citizens or lawful permanent residents with interests in any of the following topics:

**1. Semiconductor diodes and direct diode laser systems**

Novel single-mode diode laser/amplifier sources, laser array packaging, and beam combining methods are needed for next-generation high-power, high-brightness direct-diode laser systems. This effort is the exploration, research, development and, demonstration of single-mode diode-laser technologies that optimize single-mode diode-laser performance parameters through research in diode design as well as combining methods. If interesting, please contact Prof. Lin Zhu: [zhu3@clemson.edu](mailto:zhu3@clemson.edu)

**2. Advanced optical fibers and fiber lasers**

Diode-pumped fiber-lasers have offered unparalleled opportunities for efficient and excellent beam quality laser systems. This activity aims to dramatically improve the output power, while maintaining or improving the efficiency from single-mode fiber lasers. The objective of this effort is the exploration, research, development and, demonstration of single-mode fiber-laser technologies that optimize single-mode multi-kilowatt-fiber amplifier laser performance parameters through research in novel nonlinear effect suppression methods. If interesting, please contact Prof. Liang Dong: [dong4@clemson.edu](mailto:dong4@clemson.edu)

**3. Beam control**

Beam control is necessary to correct laser beam distortions caused by atmospheric turbulence. This effort explores optical beam control technologies in the presence of atmospheric turbulence, including development of innovative concepts to advance the performance, modeling, simulation and analysis of beam control systems. Prototype systems can be built and tested using our Variable Turbulence Generator with a 100-meter optical path length and the ability to test systems in actual turbulence up to and including the strong fluctuation regime. If interested, please contact Prof. Joe Watkins: [rjwatki@clemson.edu](mailto:rjwatki@clemson.edu)

For nearly 25 years, Clemson has built-up nationally distinctive capabilities in support of this and related activities. These includes industry-grade capabilities for fabricating and testing specialty optical fibers and fiber amplifiers / lasers. Unique domestic capabilities for wafer-

based optics development and prototyping and system-level test and exploration of turbulence induced effects on laser beams, including access to multi-kW power-scaling and test range. Clemson provides an educational foundation for the next generation of US engineers and scientists with “hands-on” experiences for the design, fabrication, and integration of key technologies for laser-based systems.

For additional information or questions, please contact Prof. John Ballato: [jballat@clemsn.edu](mailto:jballat@clemsn.edu)