



## The Center for Optical Materials Science and Engineering Technologies (COMSET)

Clemson University  
Clemson, SC USA

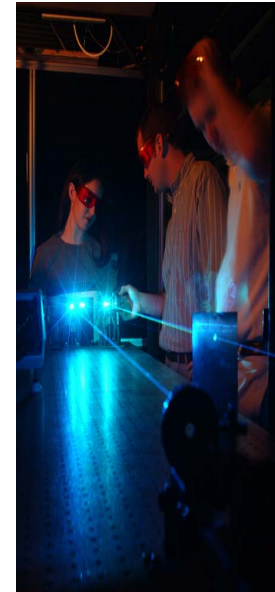
The *Center for Optical Materials Science and Engineering Technologies* (COMSET) is an internationally recognized centerpiece program at Clemson University focused on cutting edge research, education, and technology transfer on materials for optical fiber and related photonic technologies.

COMSET investigators are a multidisciplinary team of faculty from the Departments of Physics, Chemistry, and the School of Materials Science and Engineering at Clemson University. Topical thrusts include the synthesis, characterization, and integration of optical fibers, photonic crystals, organic light emitters, nonlinear optical crystals, electro-optic ceramics, and nanomaterials into application-specific structures for telecommunications, imaging, sensing, displays, and numerous other commercially critical technologies. Financial support from Federal-, State-, and Industrially-sponsored programs including ones from the National Science Foundation (NSF), the Defense Advanced Research Projects Agency (DARPA), the US Army Research Office (ARO), the US Air Force Office of Scientific Research (AFOSR), the US Office of Naval Research (ONR), the National Aeronautics and Space Administration (NASA), the South Carolina Commission of Higher Education, Yazaki, 3M Corporation, and Dow Chemical, to name just a few.

In partnership with Clemson's *Spiro Center for Entrepreneurial Leadership*, local Technical Colleges, Industry, and regional economic development entities, COMSET is actively pursuing our vision to be the pre-eminent focal point for knowledge creation and transfer in high value added photonic material technologies. This is being realized through our partnerships by our technology transfer to established and new venture firms, serving partners through scientific, business, and entrepreneurial education and mentorship, and educating to create a best-in-world talent pool at the 2-year, 4-year, and advanced degree levels. This all is being done to maximize our collective economic impact on the region, nation, and globe through advancing the scientific and work force knowledge base in optical technologies.

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<http://www.ces.clemson.edu/comset>



**Undergraduate and graduate students working with faculty to advance optical technologies.**



**An integrated environment for best-in-world education and research.**



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## HIGHLIGHTS

- COMSET has generated over \$17,500,000 in sponsored research since its founding in 2000. This research productivity corresponds to COMSET representing approximately 4% of Clemson University's entire sponsored research activities each year.
- Research partnership with UNC-Charlotte and Western Carolina University (the Carolina Micro-Optics Triangle) which subsequently has been identified by the International Society of Optical Engineers as a National University Photonics cluster.
- Educational partnership with the three Upstate Technical Colleges which led to TriCounty, Greenville, and Spartanburg Technical Colleges receiving a \$200,000 grant from the National Science Foundation to develop curricula in optical technologies to enhance workforce development.
- COMSET winning the InnoVision Technology Development award for the Upstate showing that Clemson's innovations are commercially competitive.
- COMSET/Spiro being awarded a prestigious *Partnerships for Innovation* grant which provides National Science Foundation validation for how we have partnered and has set our vision for transitioning innovation for the economic benefit of the citizens of South Carolina.
- Three COMSET faculty (Dr. Dennis Smith, Chemistry and Drs. Steve Foulger and Jian Luo, Materials Science and Engineering) are recipients of the NSF CAREER award which "offers the National Science Foundation's most prestigious awards for outstanding faculty early in their independent professional careers. To sustain and strengthen the Nation's science, mathematics, and engineering capabilities and to promote the use of those capabilities in service to society... [this program supports] those teacher/scholars who are the most likely to become the academic leaders of the 21<sup>st</sup> century."
- Two companies have been spun out that are both located in SC and employing Clemson graduates who otherwise would have left the State since no other opportunities existed until now. Further, those 2 companies have won 7 NSF Small Business Innovation Research grants worth \$1,500,000 collectively. The four years prior, there were zero in all of South Carolina (from the NSF).
- The \$21MM state-of-the-art *Advanced Materials Research Laboratory* was completed in August 2004 and now serves as COMSET headquarters.
- The recruitment of photonic material companies is now on the Upstate Alliance's strategic plan in partnership with the economic development agencies in Greenville and Anderson County (and with the State Department of Commerce).
- The South Carolina Commission on Higher Education granted COMSET State Center status in March 2004. This approval marks COMSET as the only academic center of excellence in optics in South Carolina.
- **CoEE Endowed Chair** - Approved for \$10M funding for an *Endowed Chair in Optical Materials*. This marks COMSET as a South Carolina Research Center of Economic Excellence.