

**SC Centers of Economic Excellence (CoEE)
11 Proposals FY 2007-2008**

Clemson University

Proposal: Cyber-Institute

Lead Fiscal Agent: Clemson University

Chair(s): 1

Collaborators: None

Amount: \$2M

The proposed Center will encourage the integration of hardware, middleware, software, and human assets to build collaborative, community-based environments for research, education, outreach, and industry. The Cyber Institute will enable research, enhanced learning and workforce development and provide the environment from which collaborators and virtual organizations can operate.

Proposal: Health Facilities Design and Testing

Lead Fiscal Agent: Clemson University

Chair(s): 2

Collaborators: MUSC, USC

Amount: \$2M

The proposed Center's primary purpose will be to expand and disseminate information on 1) how health facilities design impacts health and healthcare delivery, and 2) how to create settings that better support the health and well-being of patients and staff.

Proposal: Optoelectronics

Lead Fiscal Agent: Clemson University

Chair(s): 1

Collaborators: None

Amount: 2

The proposed Center will address core research in high-speed optical communications, including optoelectronic devices, optoelectronic systems, and architectures and protocols for optical networks. Also, the Center will address those limitations of optoelectronic devices and optical communication networks that have substantial economic impact and will work to meet the industry's need for higher data rates.

Medical University of South Carolina

Proposal: Advanced Tissue Biofabrication

Chair(s): 3

Lead Fiscal Agent: MUSC

Amount: \$5M

Collaborators: USC, Clemson University, South Carolina Bioengineering Alliance (SCBA)

The proposed Center will combine cell-based methodologies and bioengineering techniques to create a network of bioartificial blood vessels.

Proposal: Cancer Disparities Research

Lead Fiscal Agent: MUSC

Chair(s): 3

Collaborators: USC, SCSU

Amount: \$5M

The propose Center will focus on the discovery of biomarkers of prostate cancer, developing novel dietary interventions to reduce prostate cancer incidence, improving screening interventions, and training students and junior faculty to conduct prostate cancer research in South Carolina.

Proposal: Medication Safety and Efficacy

Lead Fiscal Agent: MUSC

Chair(s): 2

Collaborators: USC

Amount: \$5

The proposed Center will allow healthcare providers to offer more individualized drug therapies that can reduce severe medical consequences of adverse drug events (ADEs) and ineffective drug therapies that occur within inpatient and outpatient populations and a variety of institutional settings.

Proposal: Renal Disease Biomarkers

Lead Fiscal Agent: MUSC

Collaborators: None

Chair(s): 2

Amount: \$5M

The proposed Center will facilitate the building of infrastructure and expertise necessary for discovering, validating and commercializing new biomarkers of renal diseases to detect both acute and chronic kidney disease.

Proposal: Stem Cell Biology and Therapy

Lead Fiscal Agent: MUSC

Collaborators: Clemson University, Health Sciences South Carolina

Chair(s): 2

Amount: \$5M

The proposed Center will establish novel techniques for isolating, characterizing, expanding and storing stem cells. The focus of this COEE is two-fold: first, to develop bioengineering aspects of stem cell utilization allowing for more functional and adaptable clinical applications; and second, to clarify the ways to use the body's stem cells found in bone marrow or adult organs as a cause of cancer and thus a treatment target.

University of South Carolina

Proposal: Nanoenvironmental Research and Risk Assessment

Lead Fiscal Agent: USC

Collaborators: None

Chair(s): 1

Amount: \$3M

The proposed Center will facilitate and enhance existing and new nanoenvironmental research projects, offer access to existing and new tools and resources that (1) provide new data on nanomaterials and their manufacturing byproducts' fate, transport, and transformation, (2) develop and implement related methodologies and testing protocols for nanomaterials' cellular interactions and potential adverse health effects, and (3) provide guidelines for "green" manufacturing and recycling. Nanoscale materials are particle or grain size.

Proposal: Nuclear Science and Energy

Lead Fiscal Agent: USC

Collaborators: None

Chair(s): 1

Amount: \$3M

The proposed Center of Economic Excellence will create a comprehensive research and development program focusing on performance, efficiency, and maintenance issues at existing and future nuclear power plants. This Center would bring together expertise in modeling and simulation, nuclear fuels and materials, thermal fluids, and equipment monitoring to increase plant output and capacity factors, reduce maintenance costs, and improve plant efficiency.

Proposal: Translational Biosciences Research

Lead Fiscal Agent: USC

Collaborators: MUSC

Chair(s): 1

Amount: \$5M

The proposed Center will help to accelerate the identification of active compounds, complete process development and good manufacturing practice, perform release tests and formal pharmacology and toxicology research, compose investigational new drug applications, sponsor and participate in clinical studies at hospitals, and collaborate in biomarker analysis for pharmacogenomics. The rapid drug development capabilities of the Center will be a significant resource to promote the drug discoveries of South Carolina researchers.

Total Requested: \$45M
Total Funds Available: \$36M