

The International Research and Educational Programs of Clark Atlanta University's Center for Functional Nanoscale Materials

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Clark Atlanta University intends to become a major international site for nanoscience and nanotechnology research and education. Because of the history of the University and its established relationship with many African institutions, it intends to develop mutually beneficial research and educational partnerships with African institutions. The University leadership understands that the development of such partnerships present new opportunities and the necessity for such partnerships have been articulated by NSF Director Arden Bement, who writes "Developing effective ways to transcend traditional boundaries, and bring very different scientific cultures together for the benefit of science and society, without compromising excellence, is a critically important challenge for the Foundation."

In order to develop the institution's scientific research and educational capacity to serve the 21st century students, in 2006, the University established the Center for Functional Nanoscale Materials for the purpose of:

- Conducting beneficial and innovative research for the benefit of the Nation and all humanity.
- Increasing the number of students pursuing graduate and undergraduate degrees in the natural and physical sciences.
- Enhancing the research productivity of its researchers.

The Center was initially funded by the National Science Foundation as a Center for Research Excellence in Science and Technology (NSF-CREST). The Center was established at the University to be both interdisciplinary and interinstitutional and includes as domestic partners: Cornell University, University of Illinois, Emory University and Georgia Perimeter College. In 2007, the Center initiated collaborative international research and educational programs with scientists at iThemba LABS, the African Laser Center and the Technical University of Georgia. In addition, the Center has been designated as the North American Node for NANOafnet (Nanosciences African Network). The Center's objectives now include:

- The development of a diverse globally engaged science workforce.

Working with the traditional academic units of the University, the Center is carrying out activities which will not only increase/improve research excellence but is intentional in

its design to develop the next generation of globally engaged scientists. The programmatic elements permit faculty, student and staff from different countries and nations to work together side-by-side and in scientific teams. Examples of our current activities include:

- Mutually beneficial collaborative relationship with the African Laser Center, Pretoria, and iThemba LABS, Somerset West, South Africa. This relationship is being developed around the research topic *Gold Nanoparticle/Synthetic Functional Polymer Nanofibers (Nanocomposites) by Electrospinning: Novel Materials for Nanobiosensors and Photonics*.
- A pilot international REU (Research Experience for Undergraduates) program and during the summer of 2009 (June- July), summer REU students will take part in summer research for eight weeks, two weeks at CFNM and six weeks at iThemba Labs Somerset West, South Africa.

The Center is intentional in the design of its program activities and seeks to answer questions such as:

1. Will the participants emerge from the experience with skills that they could not get from domestic experience?
2. Does such an international experience broaden the networks and cultural underpinnings of science?
3. What is the mindset of the students as they become members of the global scientific community?
4. Are the participants developing the personal identity within the much larger context of the human endeavor?
5. Because of the international experience, are the participants developing the ability to look at observations (some of which may be scientific) from multiple perspectives?

The global program activities of the Center of Functional Nanoscale Materials and preliminary evaluation and effectiveness of our activities will be presented. Based on our actual experience in implementing this program and evaluation/assessment, we will propose new or modified activities which will permit Clark Atlanta University to keep contributing to the education, growth and development of scientists capable of addressing/solving technical and societal problems of a global nature.