University of South Florida

USF Nanotechnology Research and Education Center (NREC)

Web Site Link: *http://www.nrec.usf.edu/*

Contact Information
http://www.nrec.usf.edu/ContactUs.html
Staff: http://www.nrec.usf.edu/Staff.html

Description

The Nanotech1 building is a shared facility for all University of South Florida faculty and students conducting multidisciplinary research. It contains a whole suite of state-of-the-art measurement instruments as well as sophisticated fabrication equipment that is loaned to researchers for their individual projects. The equipment available in NREC facilities is maintained and operated by a professional staff whose expertise facilitates quick and innovative solutions to researchers' problems. The professional staff also provides intensive training to researchers thus enabling the faculty and student to become independent certified users of the equipment.

Equipment: http://www.nrec.usf.edu/Equipment.html

The Nanotechnology Research and Education Center housed in the 15,000 square foot Nanotech1 building at the University of South Florida has five laboratories available for user access

Cleanroom
The Nanotech 1 Cleanroom is a bay and chase cleanroom design which consists of 3 bays and a main hallway area. The cleanroom laboratory has 1700 square feet of certified class 1000 space, 1900 square feet of chase space and 300 square feet of class 10,000 gowning and supply area. This laboratory is used to fabricate sensor based projects, NMOS, PMOS and CMOS based projects and MEMS based projects.

Metrology Suite
The Nanotech 1 Metrology Suite consists of five separate labs that house major metrology equipment. The first central room that one enters is the Material Preparation laboratory which contains instruments which support the tools in the four outer labs. Off of the materials preparation lab is the Transmission Electron Microscope Lab, (X-Ray Diffraction, Atomic Force Microscope and Nanolithography) lab, the Field Emission Scanning Electron Microscope lab and the Focused Ion Beam lab. Many of the instruments in the metrology suite allow users to image, measure, characterize materials or thin film properties, or to view fabricated structures in great detail that are either fabricated in Nanotech1 or bought in from another lab.

Test and Package
The Nanotech 1 Test and Packaging laboratory contains tools to probe, wire bond, package, or electronic test circuits or devices. This laboratory is under class 10,000 cleanroom space.

Thin Films
The Nanotech 1 Thin Film lab contains several physical vapor deposition tools such as sputter tools, an ebeam evaporator, and thermal evaporator. A rapid thermal processing tool is also in this lab. This lab is mainly used for deposition of metal thin films.

Wet Chemistry
The Nanotech 1 Wet Chemistry lab contains an acid/base general use wet bench, a solvent bench, a lab

sink bench and a furnace tube cleaning bench. This lab is used for wet chemistry projects and tube cleaning that does not require the cleanroom environment.

Research Centers

https://www.usf.edu/engineering/research/research-centers.aspx

Clean Energy Research Center

http://cerc.eng.usf.edu/

CERC pursues research and development of environmentally clean energy systems, such as photovoltaics (PV), concentrating solar power (CSP), energy storage (thermal storage, batteries, supercapacitors), photocatalytic detoxification/disinfection technologies, hydrogen production and solid state storage, new efficient thermodynamic cycles, solar energy conversion/rectifying antenna (rectenna), and biomass conversion/biofuels