



TEXAS TECH UNIVERSITY  
College of Engineering™

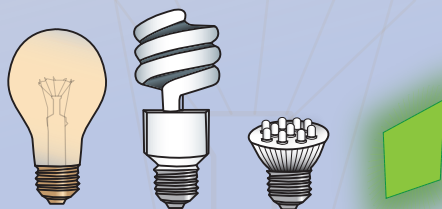
The Texas Tech University  
College of Engineering  
Nano Tech Center  
welcomes

Dr. Hongxing Jiang  
Dr. Jingyu Lin  
Dr. Zhaoyang Fan

# What is Nanophotonics?

Photonics, the study and discovery of light-based technologies, has led to products that we now depend on everyday: DVD players, garage door openers, television remote controls, and dashboard lighting. Texas Tech researchers are involved with photonics research, but at the nano-scale: one-billionth of a meter, or approximately 1/10000 the diameter of a hair. Working at such a small level allows our researchers to invent devices that produce better light more efficiently.

Nanophotonic research will transform lighting for homes and businesses. Light bulbs, both incandescent and fluorescent, will soon be replaced with new solid-state lighting. These solid-state lights can be smaller, brighter, and will use a fraction of the energy of existing light bulbs.



The changing face of residential and commercial lighting

Better lighting is not the only impact of nanophotonics. In the future, the Internet will become even faster and computers will be more powerful by integrating nanophotonic devices into computer chips. Future home televisions could be as large as your living room wall but as thin as a credit card.

Nanophotonics research will make our nation safer through attack prevention and detection. Space-based missile defense systems, previously considered too expensive or not feasible, will be built using small, but lightweight nanophotonically-produced lasers. In laboratories or in the battlefield, nanophotonic sensors will detect very small quantities of dangerous biohazards such as anthrax, smallpox, and plague.