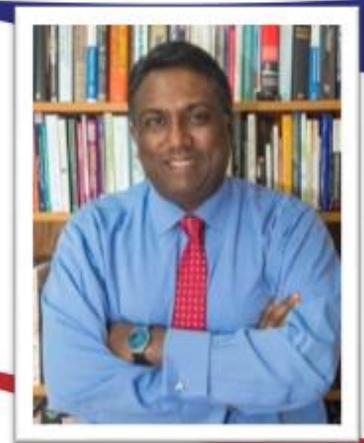




CASPER



Baylor University and CASPER present:

# Dr. Paul Cherukuri

Executive Director, Institute of Biosciences and Bioengineering  
Rice University

## *Teslaphoresis and the Single-Walled Carbon Nanotube*

**Abstract:** This seminar will discuss Teslaphoresis, which is the self-assembly of matter under the direction of radiofrequency energy transmitted by a Tesla coil. Individualized single-walled carbon nanotubes (1 nm dia., 500 nm long) placed within a Teslaphoretic force field rapidly self-assemble (< 5 s) into macroscale nanotube wires (1 mm dia., 15 cm long) that grow remotely (> 30 cm) from the transmitter. These self-assembled nanotubes strongly absorb radiofrequency energy and are capable of functioning as antennas to wirelessly power circuits. Furthermore, the Teslaphoretic force field directs the self-organization of individualized carbon nanotubes into large-scale nanotube arrays. Potential applications of Teslaphoretic directed self-assembly will be discussed including the scalable manufacturing of nanotube fibers, field effect transistors, and its critical role in the emerging field of bioelectronics.

**BIO:** Dr. Cherukuri is the Executive Director of the Institute of Biosciences and Bioengineering at Rice University where he develops and implements cross-disciplinary research, education, and innovation projects between Rice and the Texas Medical Center. Prior to Rice, he was a senior scientist at Chattem (Sanofi) integral to the rapid R&D of consumer healthcare drug products and devices. Prior to Sanofi, Cherukuri was a research Assistant Professor of Experimental Therapeutics at the University of Texas MD Anderson Cancer Center and a visiting scholar at Harvard University with George Whitesides. His research is focused on studying the electrokinetic response of biological and artificial nanoscale materials. Cherukuri received his B.S. in physics at the University of Kentucky and his Ph.D. in physical chemistry at Rice University under the supervision of Nobel Laureate, Richard E. Smalley and R. Bruce Weisman. He is a subject matter expert in nanotechnology, drug development, biomedical devices and technology commercialization. His unique background in the forefront of academic and industry research gives him critical insight to drive innovative solutions into the marketplace.

**Friday, November 17, 2017, 2:30 p.m.**  
**Baylor Sciences Building (BSB) Room C.105**

**For more information, contact Sherri Honza at 254-710-1271**