



Friday, March 8

ITE 336 ~ 11:15 am

(Refreshments in ITE 301 at 11am)

Frontiers and Applications of Metamaterials

Abstract:

Electrical engineering as a discipline spans the smallest to the largest devices ever built by humans, from nano-electronics to large particle accelerators that span tens of kilometers. This talk will explore the bridging of the two extremes; namely the use of ionized plasma gases to support extremely large electric fields and forces that can potentially miniaturize a particle accelerator. The history and principles of conventional and plasma-based particle accelerators will be reviewed as well as experimental progress and prospects for the decade ahead. Finally, recent research at UConn on a solid state “plasmonic” rather than gaseous plasma wakefield accelerator will be described.

Bio:

Thomas Katsouleas is a Professor of Electrical and Computer Engineering and a Professor of Physics at UConn. He is the co-inventor of plasma wakefield accelerators, plasma lenses, the surfatron, the plasma afterburner and several high-power light sources based on plasmas and beam. He co-lead a major experimental campaign at the Stanford Linear Accelerator Center that holds the record for the highest energy electrons and positrons attained with a plasma accelerator. He is a fellow of the IEEE, NAI and APS and the recipient of the Gordon Prize in Engineering Education from the NAE.