



COLLEGE OF ENGINEERING

SEMINAR ANNOUNCEMENT

Mathematical/Computational Modeling of Electrical Field-based Cancer Treatments

Presenter: Jennifer Pascal

Abstract

Cancer is the second leading cause of death in the United States, just behind heart disease. While significant progress has been made in the treatment of cancer, effective delivery of drugs to cancer cells is still a formidable challenge because of the biobarriers imposed by the tumor environment at the cellular and tissue scales. One approach to overcome these biobarriers is by using applied electrical fields. However, the effects of these applied electrical fields on drug delivery to tumor cells from a mechanistic perspective remain poorly understood and unpredictable. Thus, the resulting trial and error approach to designing devices and protocols for therapies has led to few commercially available treatment systems. Thus, the overarching theme of my research is mathematical/computational modeling of drug transport in tumors enhanced by electrical fields to overcome these biobarriers. Here, I will describe my doctoral and postdoctoral research on modeling electrokinetics-based bioseparations and drug delivery to tumors and future research plans at Tennessee Tech University.

About the Speaker

Jennifer Pascal has a PhD in Engineering (concentration: Chemical Engineering) from Tennessee Tech and is currently an Assistant Professor of Chemical Engineering. Previously, she was a National Institutes of Health (NIH) Academic Science Education and Research Training (ASERT) Postdoctoral Fellow at the University of New Mexico where she spent 75% of her time on modeling drug delivery to tumors and 25% teaching at Southwestern Indian Polytechnic Institute.

Date: November 12, 2013

Time: 12 P.M. – 1 P.M.

Bring your own lunch; beverages and snacks to be provided.

Location: Prescott 225