



**IEEE Engineering In Medicine and Biology –  
Signal Processing Joint Cyprus Chapter**

### **Distinguished Lecturer Program**

In the context of the 2nd International  
Conference of Nano-theranostics (ICoN2015)  
(<http://iconconference.org/>)



### **Professor Ghaleb A. Hussein**

Chemical Engineering Department  
American University of Sharjah (AUS in the United Arab Emirates)

**Thursday October 29<sup>th</sup> 18:00-20:00,**

### **St. Raphael Resort**

Leoforos Amathountos , 502, 4520 Pyrgos, Limassol, Cyprus  
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## **Drug Delivery and Ultrasound**

Chemotherapy is the most extensively used treatment in the fight against malignant neoplasms. Unfortunately, chemotherapy use is plagued with numerous side effects. These side effects are caused primarily because of the non-specific nature of the treatment as the drug is capable of killing normal and cancerous cells alike. Several drug delivery systems have been investigated to reduce these side effects by encapsulating the chemotherapeutic agent in a nano-sized carrier until it reaches the tumor site. These carriers include: solid nanoparticles, micelles, liposomes and e-liposomes. Once the nanoparticle reaches the desired location, ultrasound is applied to release the chemotherapy drug directly to the cancer site, thus avoiding any interaction with the healthy cells in the body. This way the adverse side effects of chemotherapy are minimized.

This presentation will discuss two novel chemotherapy carriers (micelles and emulsion-Liposomes) used in conjunction with acoustic radiation to treat malignancies

### **Short Bio:**

Dr. Ghaleb A. Hussein graduated with a PhD in Chemical Engineering (Biomedical Engineering emphasis) from Brigham Young University in 2001 and joined the American University of Sharjah (AUS in the United Arab Emirates) as an Assistant Professor in the Chemical Engineering Department January 2004. He has been elected into the Distinguished Lecturer

Program- IEEE-EMBS (Jan 2014- Dec 2015). He was promoted to Associate Professor and Professor in 2008 and 2013, respectively. Four years ago, Dr. Hussein took a sabbatical leave which enabled me to travel to Ecole Polytechnique Fédérale de Lausanne (EPFL, and work in Dr. Jeffrey Hubbell's laboratory).

Dr. Hussein has published 76 journal articles (in addition to 1 book chapter and 1 patent) and 40 conference papers/abstracts. In addition, he was a Theme Editor for a special issue in Advanced Drug Delivery Reviews and is currently serving on the Editorial Board of the International Review of Applied Sciences and Engineering (IRASE).