



## **Anthony Guiseppi-Elie**

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### **Research Interests**

*Persistence and perseverance, vim and verve*

Anthony Guiseppi-Elie is head of the Department of Biomedical Engineering, director of the Biomedical Engineering Division of the Texas A&M Engineering Experiment Station (TEES) and TEES Professor at Texas A&M University. His primary research interests are in engineered bioanalytical microsystems in the service of human health and medicine and include:

**Bioelectronics and Organic Electronics:** The synthesis and characterization of chemically and biologically responsive materials such as CNT-Enzyme supramolecular conjugates, CNT-conductive electroactive polymer (CEP) composites and their integration with CMOS technology such as in Enzyme-FETS and chemoresistors used in multi-element arrays such as electronic tongue and electronic nose.

**Biochips and Biofuel Cells:** The development of implantable biochips for physiologic status monitoring. Research aims to integrate biotransducers, mixed signal electronics, low power devices and wireless communications into clinically relevant systems for monitoring during trauma and surgery and for monitoring in the intensive care unit (ICU).

**Nano and Microfabrication and BioMEMS:** Design and fabrication of interdigitated arrays, microdisc arrays and arrays of arrays for biological detection. Integration of arrays into biomedical diagnostic devices. The use of under potential electrodeposition to control the nanotopography, catalytic properties and interfacial impedance properties of metal/tissue interfaces.

Transdisciplinary research is along a continuum from fundamental investigations of length-scale influences of biomaterials properties through preclinical testing of diagnostic devices in piglets. Collaborations are with the Tripler Army Medical Research Center (Honolulu) and the Medical University of South Carolina.

### **Awards & Honors**

- Fellow of the American Institute of Medical and Biological Engineering (2006)
- Fellow of the Royal Society of Chemistry (2012)
- Fulbright Specialist (2014 - 2019) U.S. Department of State and the J. William Fulbright Foreign Scholarship Board
- Editor-in-Chief, Bioengineering

- Associate Editor, Biomedical Microdevices
- Visiting Distinguished Professor of Industrial Biosensors and Bioelectronics (2014 and 2015), L'Ecole des Mines d'Alès, France
- Kenneth E. Avis Distinguished Visiting Professor of Pharmaceutics (2013), UT Department of Pharmaceutical Sciences, University of Tennessee Health Sciences Center
- Congress Chair, 15th IUPAC International Symposium on Macromolecular Complexes (2013)
- IEEE-EMBS Distinguished Lecturer (2012-2013) – Biosensors and Bioelectronics
- Visiting Professor of Nanobiotechnology (2012), Moscow State University, Moscow, Russia
- Visiting Professor of Nanobiotechnology (2012), University of Western Cape, Cape Town, South Africa
- Work premiered on German nation-wide Deutschlandradio program 'Science in Focus' (2012)

### Education

- Postdoctoral Fellowship, Surface Science, Massachusetts Institute of Technology, 1983
- Sc.D., Materials Science and Engineering, Massachusetts Institute of Technology, 1983
- M.Sc., Chemical Engineering, University of Manchester Institute of Science and Technology, 1980
- B.Sc., Chemistry, Applied Chemistry and Biochemistry, University of the West Indies, 1979

### Selected Publications

Deon Hines, Olukayode Karunwi, William R. Harrell and Anthony Guiseppi-Elie, ["Choice of Electrode Metal Influences the Chemoresistive Vapor Response of Brominated SWCNTs"](#) Macromolecular Symposia (2015) 351 (1), 19-26.

Romain R Soleri, Hary H Demey, Scherrine S Tria, Anthony Guiseppi-Elie, Aziza A Ibn Hadj Hassine, Catherine C Gonzalez, Ingrid Bazin, ["Peptide conjugated chitosan foam as a novel approach for capture-purification and rapid detection of haptin - Example of Ochratoxin A"](#) Biosensors and Bioelectronics (2014) 67, 634-641.

Nolan Wilson, Mark Blenner and Anthony Guiseppi-Elie, ["Polyplex Formation Influences Release Mechanism of Mono- and Di-valent Ions from Phosphorylcholine Group Bearing Hydrogels"](#) Polymers (2014) 6(9), 2451-2472.

Alfonso Sepúlveda, M. Tylinski, Anthony Guiseppi-Elie, R. Richert and Mark D. Ediger\*, ["Role of fragility in the formation of highly stable organic glasses"](#) Physical Review Letters (2014) 113(4), 045901-5.

Christian N. Kotanen, Olukayode Karunwi and Anthony Guiseppi-Elie, ["Biofabrication Using Pyrrole Electropolymerization for the Immobilization of Glucose Oxidase and Lactate Oxidase on Implanted Microfabricated Biotransducers"](#) Bioengineering (2014), 1(1), 85-110.

Nolan Wilson and Anthony Guiseppi-Elie, ["Targeting Homeostasis in Drug Delivery Using Bioresponsive Hydrogel Microforms"](#) International Journal of Pharmaceutics (2014) 461(1-2) 214-222.