

*Bioengineering Faculty Search, College of Engineering, University of Toledo*

## **Glass-Based Biomaterials**

Dr. Aisling Coughlan

*Assistant Professor of Bioengineering, University of Toledo*

Glass has been used in the medical industry since the 1400s, beginning with glass vessels used to store medicine. In the 1960's the first bioactive glass was developed for restoration and repair of damaged sites in bone tissue. Interest steadily grew in developing bioactive glasses for orthopedic applications as there is an almost limitless number of compositions that can be formulated. This presentation will discuss the history of glass as a biomaterial with a focus on research that investigates the modification of, what is traditionally a dental material, glass polyalkenoate cement (GPC), for use in orthopedics to eradicate the proliferation of harmful microbes such as methicillin resistant *Staphylococcus aureus* (MRSA). This presentation will additionally discuss the research relating to antibacterial coatings based on GPC chemistry including the design of novel materials and properties related to surface coating in surgical theatres. Furthermore, this presentation will discuss the evolution of this research pertaining to novel studies relating to bone scaffolds, chemotherapeutic therapies and other applications for bioactive glass.

**Where:** SSOE Seminar Room, NI 1027

**When:** Friday, September 22, 2017

**Time:** 11:30 – 12:30 pm

*Dr. Aisling Coughlan obtained her BS degree in Biomedical and Advanced Materials (2006) at the School of Science and Engineering, University of Limerick, Ireland, followed by a PhD (2009) in Biomedical Materials at the Materials and Surface Science Institute, also located at the University of Limerick. Subsequently, she obtained a position at the Inamori School of Engineering, Alfred University, New York (2009-2013) as an adjunct professor and a postdoctoral researcher in biomaterials and glass science. Dr. Coughlan spent the following 2 years at the School of Materials Engineering at Purdue University as a Visiting Assistant Professor, where she continued her research on glass based materials and taught core material science classes. In January 2016 Dr. Coughlan began her appointment as a tenure-track Assistant Professor in the Department of Bioengineering at the University of Toledo. Dr. Coughlan has 1 patent at the University of Toledo, authored/contributed to over 40 peer-reviewed journal publications, and has presented at international conferences in Europe and the United States.*