

## A Message from Western Alumni James Fallona and Mary Catherine Fallona



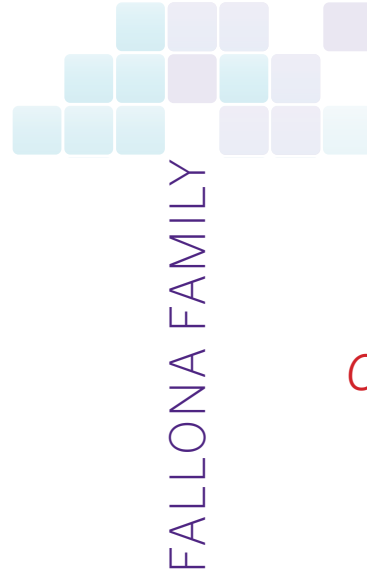
Interdisciplinary Science is important in the study and understanding of our universe and world because it connects all fields of research by inspiring the communication of ideas among all those who pursue knowledge.

These connections allow researchers to bring and apply ideas from beyond their particular discipline, thus enriching their work.

*We chose to enable and support Interdisciplinary Science at Western because we strongly believe in its concept and thus the necessity for the creation of an effective forum where all can come together to exchange ideas in both formal and informal settings.*

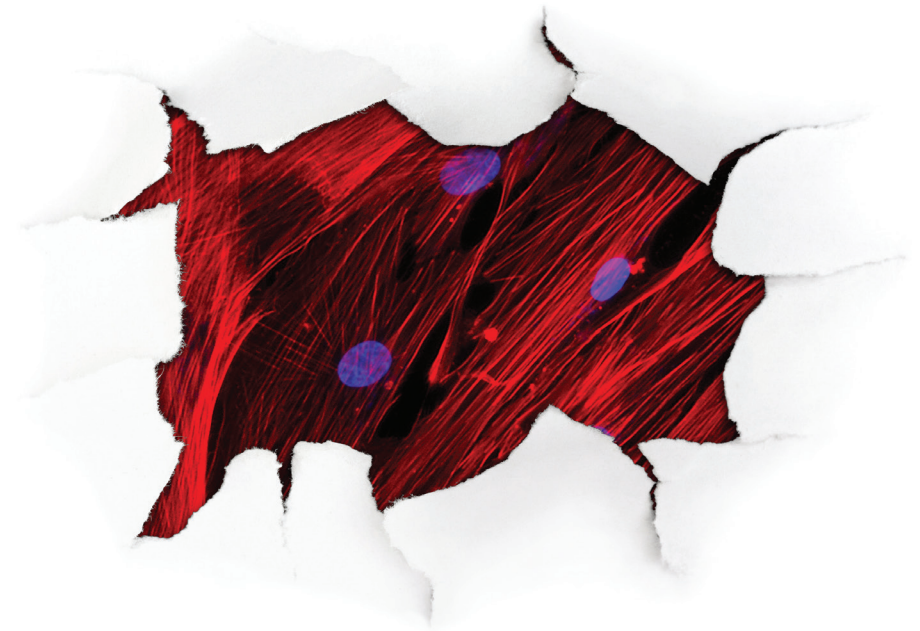
*James Philip Fallona*

*Mary Catherine Fallona*



# INTERDISCIPLINARY RESEARCH SHOWCASE

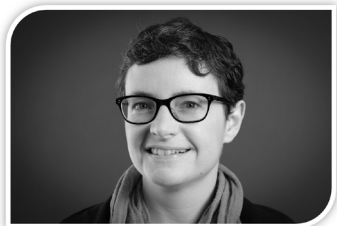
*Celebrating excellence*



*January 16, 2017*

# Fallona Interdisciplinary Science Award Lecture

## Dr. Elizabeth Gillies



In July 2006, Elizabeth joined Western University as an Assistant Professor in the Department of Chemistry. In October of the same year, she became a Tier 2 Canada Research Chair jointly appointed to the Department of Chemical and Biochemical Engineering. Her research program centers around the synthesis and study of new polymers. A key area of her group's research

has been the development of degradable polymers and novel mechanisms for triggering degradation to occur at specific times and locations in response to stimuli. In collaboration with Biologists Hugh Henry and Zoe Lindo, she is applying these polymers in fertilizer coatings that are designed to release fertilizers in response to the needs of plants. A diverse team of Western students have also founded a company that aims to employ these polymers for controlled drug release. She has also worked extensively with Chemist Paul Ragona on phosphonium-containing materials that possess functions such as bacterial killing and the ability to self-repair and with Chemical Engineer Kibret Mequanint on polymeric materials to promote the regeneration of vascular tissues. More recently, she has begun working with Lauren Flynn and Frank Beier, members of the Bone and Joint Institute, to develop materials for repairing musculoskeletal tissue.

Over the past 10 years she has also worked with companies such as LANXESS, Xerox, and 3M to use the principles of Chemistry and Chemical Engineering to solve industrially relevant problems.

## Triggered Degradation of Plastics: From Pharmaceuticals to Agricultural Products

Our society uses polymers, often referred to as plastics, in a vast array of products ranging from food packaging to medical devices. They are inexpensive, light in weight, resistant to water, and can be engineered to have various properties such as being hard or soft, and adhesive or non-adhesive. Unfortunately, most of the commonly used polymers do not degrade in the body or in the environment over a reasonable time frame, resulting in pollution and other problems. To address this limitation, researchers focused on the development and application of biodegradable polymers. This presentation will cover our research on a new class of degradable polymers that are stable in their capped form but using a stimulus such as light or specific molecules present in the body, they are triggered to fall apart to non-harmful small molecules.

## Agenda

- 1:00 - 2:00 Poster presentation and competition (PAB ATRIUM)
- 2:00 - 2:15 Welcome and introductions
- 2:15 - 2:45 Materials and Biomaterials: Transformational Science
  - Fanchini lab: Game-changing organic polymers  
*Expanded Memory in a Flash*
  - Ragogna lab: De-icing Agents
  - Sham lab: Materials for Clean Energy
- 2:45 - 3:45 Keynote presentation - Dr. Elizabeth Gillies  
Associate Professor, Department of Chemistry &  
Department of Chemical and Biochemical Engineering
- 3:45 Presentation of the Fallona Family Interdisciplinary Award
- 4:00 Reception

