College of Engineering
Department of
Mechanical & Industrial Engineering

The Robert W. Courter Seminar Series

3:00-4:00pm, Friday, February 10th, 2023

PFT 1253

Circularity of Polymer Composites

by Kyriaki Kalaitzidou

Rae. S and Frank H. Neely Professor and Associate Chair for Faculty Development
Woodruff School of Mechanical Engineering, Georgia Institute of Technology

Polymer composites offer lightweight alternatives to metals and metal composites allowing for fine tuning of the properties through the material selection and structural configurations. That is why mainly the reason polymer composites are used everywhere from structural applications in infrastructure, aerospace and automotive industry to microelectronics and despite the associated high carbon footprint, they always end up in landfills, pollute the environment and result in waste of valuable resources. This seminar will focus on end of life strategies for polymer composites providing examples of how the life cycle of different composite types can be extended, how valuable materials can be reclaimed at the end of life or in other cases how repurposing can be the ideal solution instead of reclaim and recycling.

*Dr. Kalaitzidou joined the faculty in the George W. Woodruff School of Mechanical Engineering, at Georgia Institute of Technology in 2007. She was a Woodruff Faculty Fellow from 2016-2019 and she is currently the Rae S. and Frank H. Neely Professor. She holds a Courtesy appointment in the School of Materials Science and Engineering. Prior, she was a Postdoctoral Fellow in the Polymer Science and Engineering Department at University of Massachusetts, Amherst. She received her Ph.D. in Chemical Engineering and Materials Science from Michigan State University in 2006 and her M.S in Mechanical Engineering and Engineering Mechanics from Michigan Technological University in 2002. Her research focuses on the manufacture of polymeric lightweight structures and smart materials which are commonly used in applications ranging from aerospace and automotive to consumer electronics. Her research has been sponsored by both federal agencies such as NSF and USDA and various industries including Yamaha, Honda, VW, Boeing, Intel and Samsung. She has co-authored a book chapter and more than 70 peer-reviewed journal publications; and holds 2 patents (https://scholar.google.com/citations?user=RZvLH5QAAAAJ&hl=en). She has co-authored about 80 refereed conference papers and presented in National and International conferences. Prof. Kalaitzidou served as the General Chair of the 34th American Society for Composites (ASC) in 2019 (https://pwp.gatech.edu/asc2019/). She is a member of TAPPI, ASC and ASME. Dr Kalaitzidou is an alumna (2019) of the ELATES Program (https://drexel.edu/provost/initiatives/elates/).