

**DEPARTMENT OF CHEMISTRY AND ENVIRONMENTAL SCIENCE**  
**SEMINAR SERIES**  
**FALL 2019**

**DATE:** WEDNESDAY, OCTOBER 16, 2019

**WHERE:** TIERNAN HALL LECTURE 1

**TIME:** 1:00-2:20PM

**GUEST SPEAKER**

Dr. George Polson, PhD  
CSLA Board Advisor  
New Jersey Institute of Technology

**TOPIC**

The Chemistry, Biology and Business of *Dandruff*

**ABSTRACT**

*Dandruff* is a common affliction seen in humans and certain animals. In fact, ~50% of the human population suffers from *Dandruff*. A common fungus (*Malassezia* species) that resides on everyone's scalp is thought to be the cause of *Dandruff*. Proliferation of this fungus ultimately manifests as white to yellowish flakes that slough off from the scalp (skin), often accompanied by itching and irritation. This talk will focus on etiology of dandruff and the treatments used to mitigate the condition - discussing the confluence of chemistry, biology and business to develop the most cost-effective and beneficial treatment for mitigation of *Dandruff*. One intent of this seminar is to educate the students about problem solving skills needed to tackle consumer needs and capitalize on business opportunities, thereby enhancing and enriching their career after gaining employment with their science degree. The students will learn how one's curiosity, ability and creativity to solve complex problems through a multidisciplinary approach can lead to elegant solutions while learning many new facts. Once you enter a career, there are so many directions one can go and so many things one can learn, see and experience during that journey.

Because of its global prevalence and the itchiness and scalp disorders as well as the social stigma caused by *Dandruff*, (not to mention the business opportunity) - many leading multi-national consumer-care companies have worked hard to develop products that treat this affliction. Treating and mitigating *Dandruff* is a huge global business and the revenue of various finished products bought by consumers around the globe account for ~\$5 Billion USD spend per year. Zinc Pyrithione (ZPT) - the world's #1 active ingredient (used in global brands like Head & Shoulders-P&G, Clear-Unilever, Fructis- L'Oréal, T/Gel- Neutrogena) was developed over 60 years ago and first marketed in 1965 by P&G and is still the most cost-effective and most popular active ingredient. The talk will also touch on what it takes to push the envelope to develop new and improved anti-dandruff shampoo products or therapies with enhanced efficacy and hair feel that continue to delight the consumer.

**BIO**

Dr. George Polson received his M. Phil. and Ph.D. (Org. Chemistry, 1987) from Syracuse University, NY, after securing a B.Sc and M.Sc in Applied Chemistry (1st Rank, Gold Medalist) from the University of Kerala, India. He started his industry career in 1987 with Olin Chemicals in CT as a Sr. Research Chemist in Molecular and Vibrational Spectroscopy and later worked in

various areas in central R&D holding increasing responsibilities in New Product Development, Product Registration and Global Technical Support. He became the Technology Manager for Arch Personal Care Products in 1999. He also completed an accelerated Management program at the Kellogg School of Business. Later, he served as the Director of Technology at Arch Chemicals supporting global businesses in Water products, Wood Preservation, Personal Care Ingredients, Industrial Anti-microbials, and Polyurethanes. From 2005 to 2010, he transitioned into a business role as the Global Business Director of Personal Care business working closely with Procter & Gamble. From 2010 to 2013 he was the Global Director for Innovation Research for Lonza. In mid-2013 he joined Vivimed Labs-NJ as the Chief Operating Officer heading the Global Specialty Chemicals division that developed and sold Hair and Skin Care ingredients, hair colors, photochromic dyes, imaging chemicals and anti-microbials. From 2017 to 2019 he served as Global VP of Technology at Innophos, NJ heading innovation and NPD for ingredients in Food, Nutrition, Health and Ind. Specialties as well as serving on the M&A executive team. He is the author/co-author of many scientific publications and presentations, holds over 70 US and world patents (including co-inventorship for the potentiation technology commercialized in “Head & Shoulders” - a \$3B global Anti-dandruff shampoo brand). He currently serves on the International Board of Governors for the Asian School of Architecture and Design Innovation (ASADI) in India and is a Board Advisor to the College of Science and Liberal Arts at NJIT.

**Committee members:**

**Dr. Pier Champagne – [pier.a.champagne@njit.edu](mailto:pier.a.champagne@njit.edu)**

**Dr. Hao Chen – [hao.chen.2@njit.edu](mailto:hao.chen.2@njit.edu)**