

DETECTING VOLATILE ORGANIC COMPOUNDS THAT MIMIC CADAVERIC DECOMPOSITION USING POLYDIACETYLENE-BASED COATINGS. **Deanna Fisher**, Simon Rondeau-Gagne, University of Windsor, Department of Chemistry and Biochemistry, 401 Sunset Ave, Windsor, ON N9B 3P4, Canada. ([fishel1h@uwindsor.ca](mailto:fishel1h@uwindsor.ca))

Polydiacetylenes (PDA) are a unique class of conjugated polymers that can be prepared from the topochemical polymerization of 1,3-butadiyne containing monomers. This polymer, composed of alternating ene-yne units, possesses rich optical properties that are used for sensing various analytes. PDA-based sensors mainly focus on colorimetric response or fluorescence of the polymer, where the materials can be classified as 'active' or 'inactive' phases, which can be utilized in a variety of applications. This immediate and sensitive optical change upon various stimuli or chemicals makes sensing with PDA a great option for in-field forensic utilization. Since forensic testing is often bulky, expensive, or requires training and expertise to use, a small and portable PDA-based sensor would revolutionize investigation. This presentation will focus on the utilization of PDA and optical sensing in the field of forensic science to examine volatile organic compounds (VOCs) released from cadaveric decomposition. With this new sensor platform that reacts to VOCs, we will discuss the sensing methodology and materials, along with post-mortem intervals, stage and rate of decomposition that can be determined by onsite forensics, before sending the body for further testing. Our new approach opens opportunities for the portable and accurate detection of VOCs in forensic science.