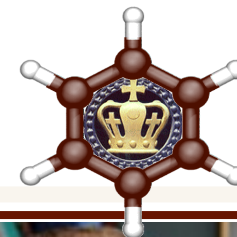


Columbia University Department of Chemistry

Fall 2017 Colloquium Seminar Series THE CHANDLER MEDAL LECTURE



Molecular Electronic for Sensors



This lecture will detail the creation of ultra-sensitive sensors based on electronically active conjugated polymers (CPs) and carbon nanotubes (CNTs). A central concept is that a single nano- or molecular-wire spanning between two electrodes would create an exceptional sensor if binding of a molecule of interest to it would block all electronic transport. The use of molecular electronic circuits to give signal gain is not limited to electrical transport and CP-based fluorescent sensors can provide ultratrace detection of chemical vapors via amplification resulting from exciton migration. Nanowire networks of CNTs provide for a practical approximation to the single nanowire scheme. These methods include abrasion deposition and selectivity is generated by covalent and/or non-covalent binding selectors/receptors to the carbon nanotubes. Sensors for a variety of materials and cross-reactive sensor arrays will be described. The use of carbon nanotube based gas sensors for the detection of ethylene and other gases relevant to agricultural and food production/storage/transportation are being specifically targeted and can be used to create systems that increase production, manage inventories, and minimize losses.

Presented by
Timothy Swager
Massachusetts Institute
of Technology



Friday, December 15, 2017

1:30 – Meet the Speaker in room 328 Havemeyer

4:00 – Tea & Cookies in room 328 Havemeyer

4:30 – Seminar in room **309** Havemeyer



Reception to follow
in the 7th floor
Lounge



COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK

Hosted by
Colin Nuckolls

Department of Chemistry, Columbia University, Havemeyer Hall, 3000 Broadway, New York, NY 10027, USA 212-854-2202 www.columbia.edu/cu/chemistry

All lectures take place on Thursdays at 4:30pm in room 209 Havemeyer, unless otherwise indicated. Tea and cookies will be served prior to each lecture at 4:00pm in room 328 Havemeyer.

Please check our website for updates. If you would like to be added to our email list, please email your request to d.farrell@columbia.edu.