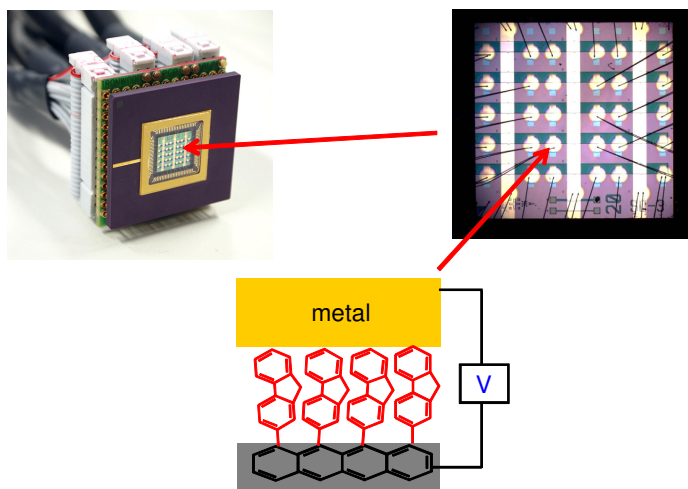


## Richard L. McCreery

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### Molecular Memory based on Dynamic Doping of Conducting Polymers

The prospect of using molecules as components in electronic circuits has both enormous potential and significant challenges. It is possible that molecular circuits will enhance silicon-based microelectronics, yielding faster, denser, and cheaper electronic devices with possibly new functions not possible with conventional semiconductors. Our approach to the problem is based on a layer of molecules covalently oriented between a conducting substrate and a metallic top contact. We use Raman and UV-Vis spectroscopy to probe the structure of the molecules in live molecular junctions, in order to observe structural changes and determine stability. The behavior of molecules as circuit components is strongly dependent on molecular structure and length, but weakly dependent on temperature in the range 5 - 450 K. Progress toward the central objective of rational design of molecular electronic circuits will be described, as well as applications in nonvolatile memory and novel electron transport mechanisms.



*Dans le cadre de sa venue à Paris, le conférencier donnera 2 autres séminaires:*

#2: Building Functional Electronic Devices from Molecular Components  
**Mercredi 1 juin à 11h00, Amphi Buffon**

#3: Fabrication and Spectroscopy of Diazonium-Derived Molecular Electronic Devices  
**Jeudi 9 juin à 11h00, salle 774, Bât. Lavoisier**

**Mardi 7 juin à 11h00 ~ Amphi Buffon ~**

**15 rue Hélène Brion, 75013 Paris**