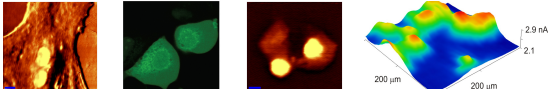


May 11, 2013 at Surface Canada 2013 (Western)

Scanning Electrochemical Microscopy with Scanning Electron Microscopy and Other Techniques

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 e-mail: zfding@uwo.ca, (519)661-2111 Extension 86161
 Web: <http://www.uwo.ca/chem/people/faculty/ding.htm>

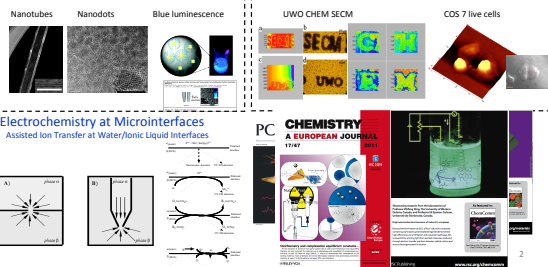


Laboratory of Electrochemistry, Spectroscopy, and Microscopy for Biology and Energy

Photoelectrochemistry
 Electroluminescent nanocrystals
 Solar cells

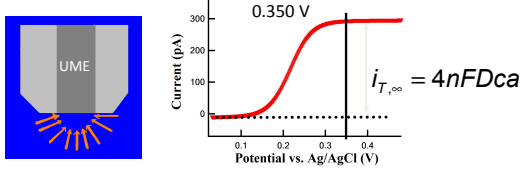
Scanning Probe Microscopy
 Scanning Electrochemical Microscopy, Confocal Microscopy
 and Raman Microspectroscopy

Electrochemistry at Microinterfaces
 Assisted Ion Transfer at Water/Ionic Liquid Interfaces



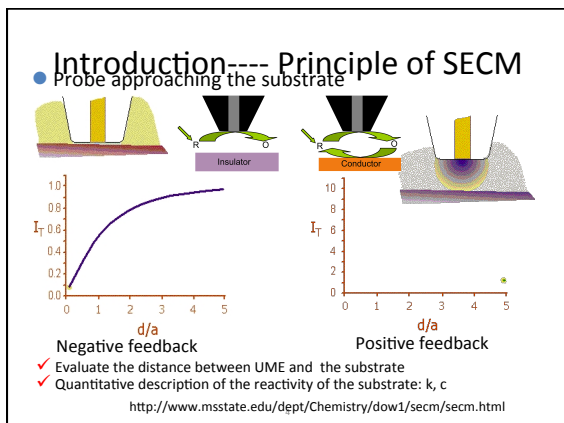
Introduction---- Principle of SECM

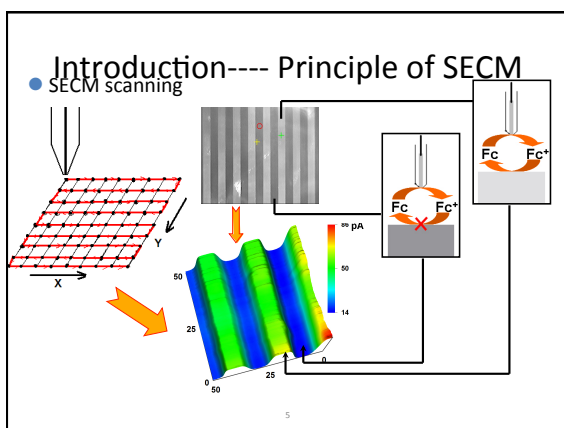
- Probe far away from the substrate

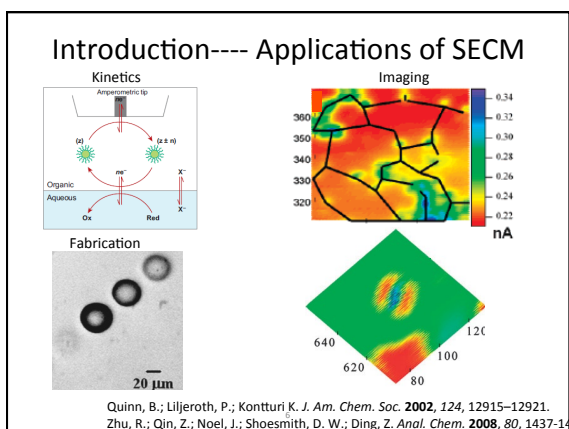


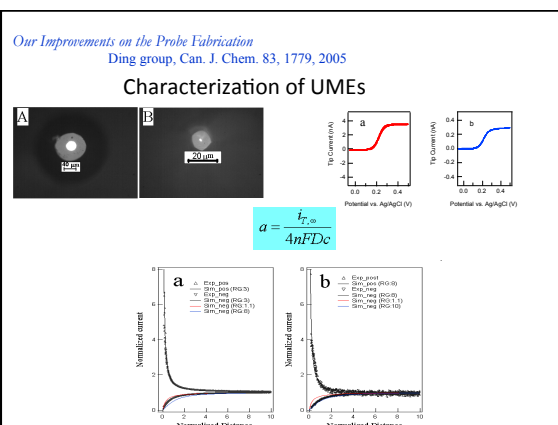
- ✓ Evaluate the quality of UME
- ✓ Confirm the size of the UME
- ✓ Get the right potential to bias on UME in SECM experiments

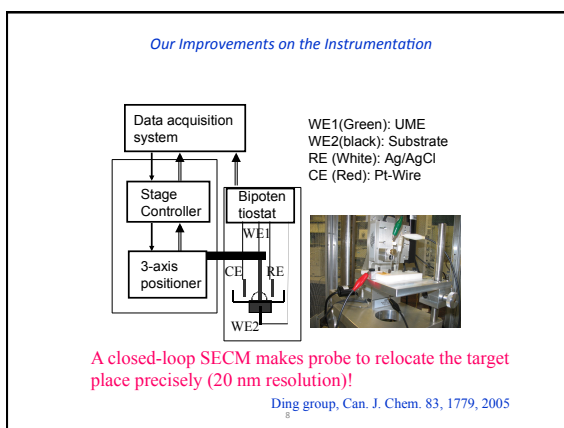
Zhao, X.; Ding, Z. *Can. J. Chem.* **2007**, *85*, 175-182.
 Zhu, R.; Ding, Z. *Can. J. Chem.* **2005**,

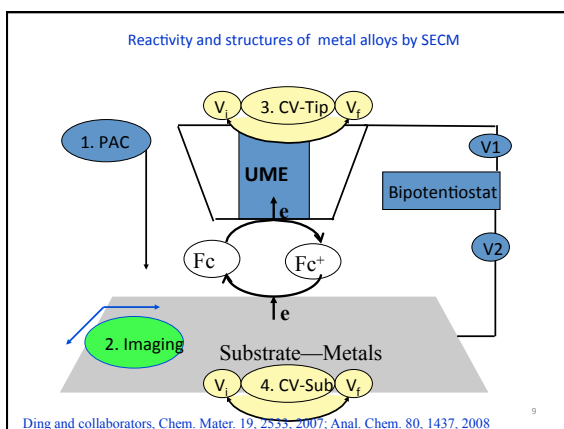


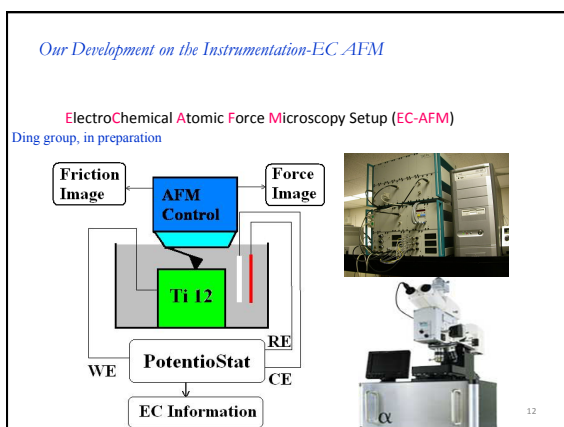
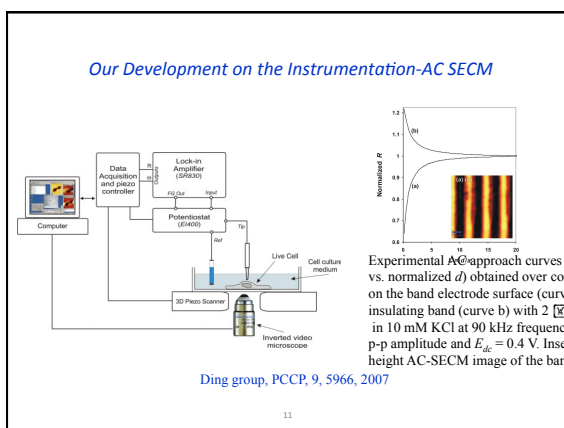
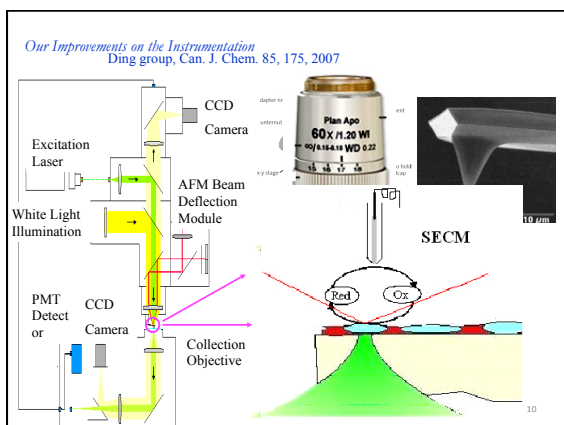




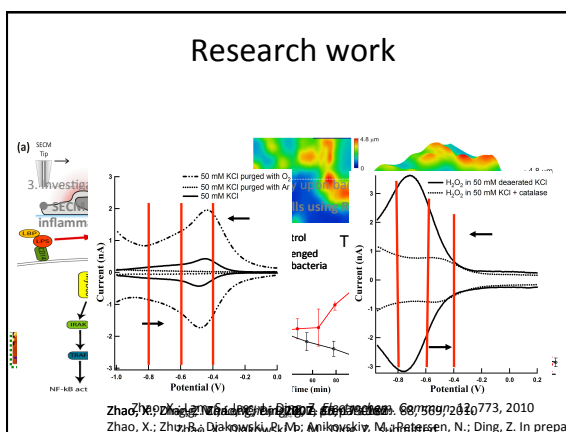


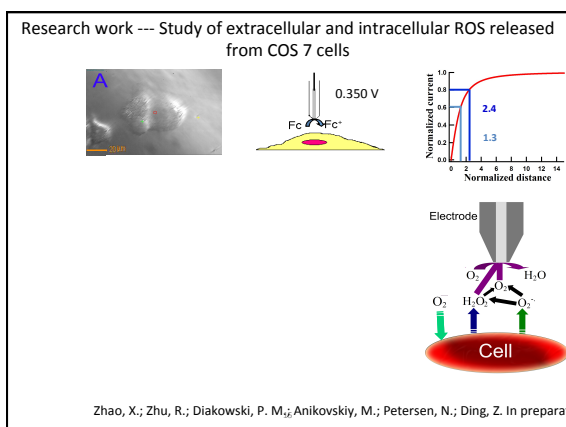


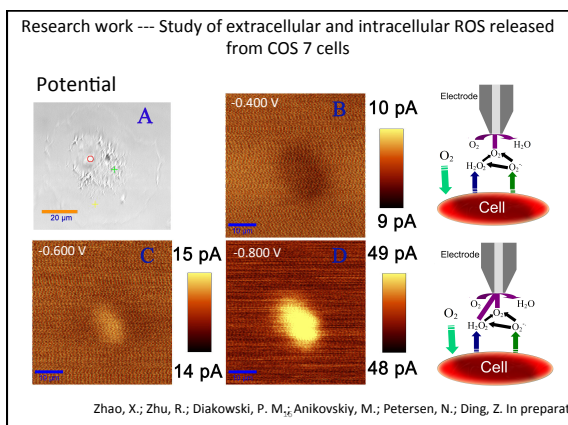


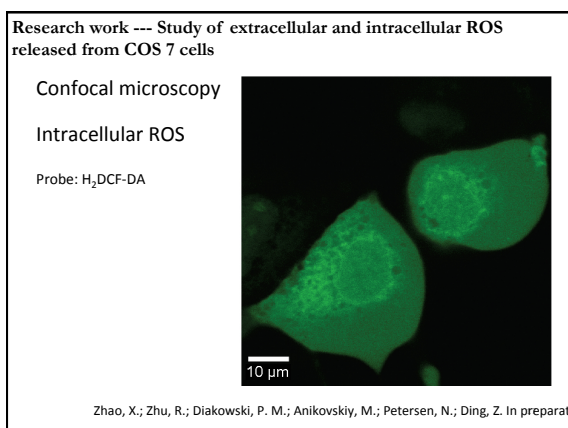


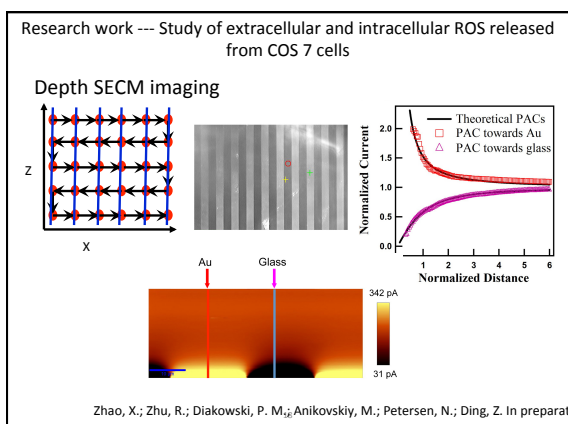


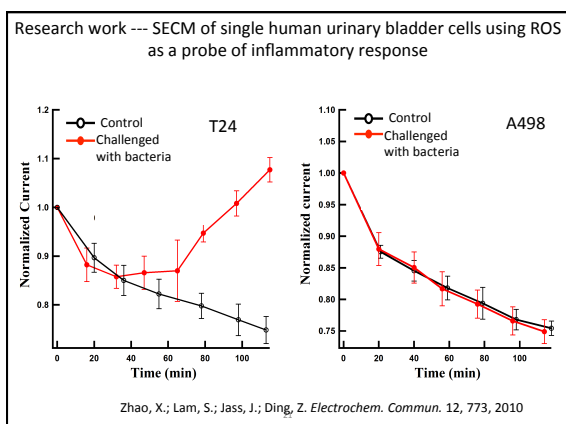
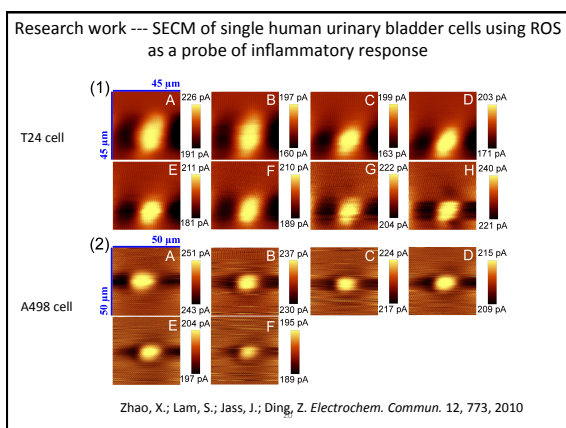
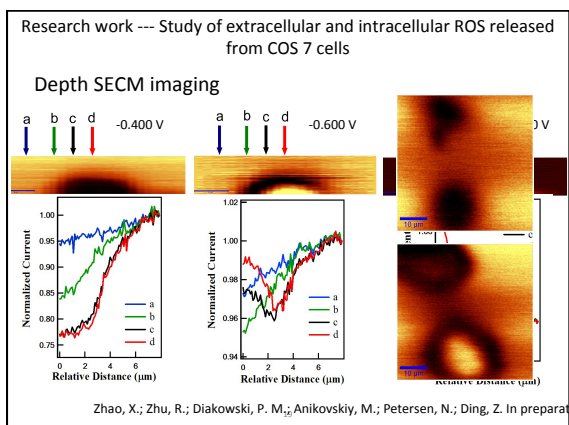






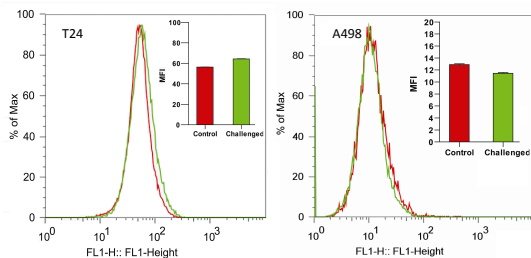






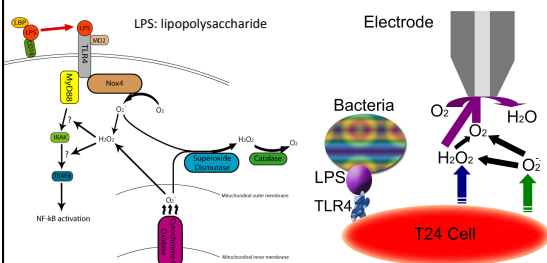
Research work --- SECM of single human urinary bladder cells using ROS as a probe of inflammatory response

Flow cytometry of cells stained by $H_2DCF\text{-}DA$



Zhao, X.; Lam, S.; Jass, J.; Ding, Z. *Electrochem. Commun.* 12, 773, 2010

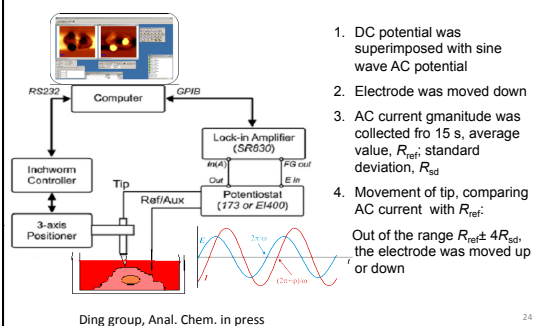
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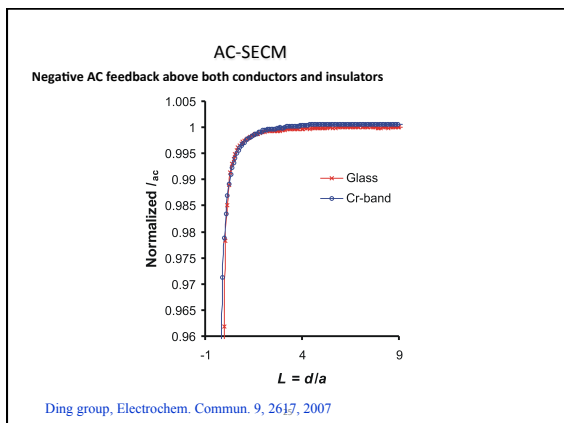


A498 cells lack TLR4 while the T24 cells have both TLR4 and CD14

Zhao, X.; Lam, S.; Jass, J.; Ding, Z. *Electrochem. Commun.* 12, 773, 2010

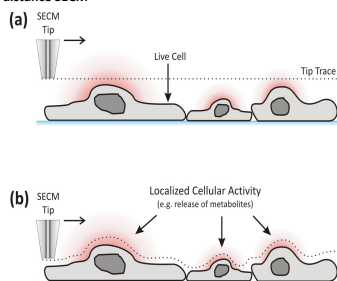
Research work --- Spatial location of reactive oxygen species released from RAW 264.7 cells by using constant distance SECM





Research work --- Spatial location of reactive oxygen species released from RAW 264.7 cells by using constant distance SECM

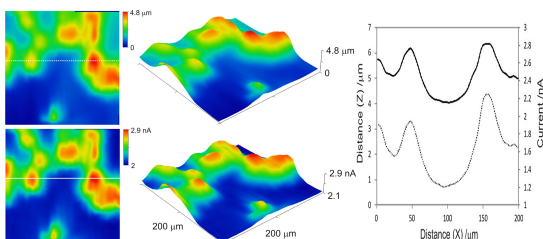
- Spatial location of reactive oxygen species released from RAW 264.7 cells by using constant distance SECM



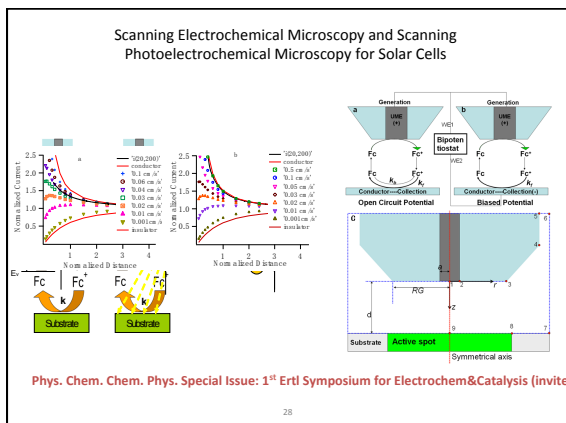
Ding group, *Anal. Chem.* in press 26

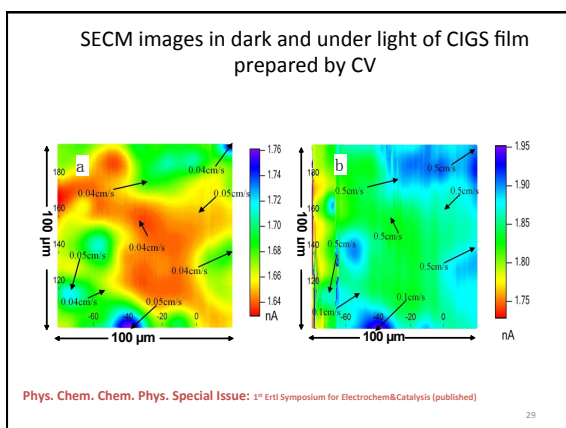
Research work --- Spatial location of reactive oxygen species released from RAW 264.7 cells by using constant distance SECM

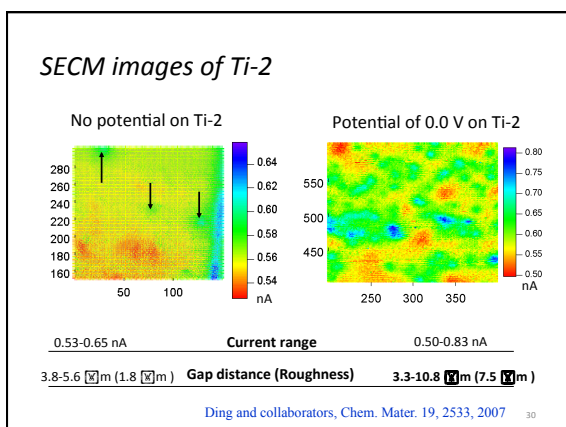
Constant distance mode

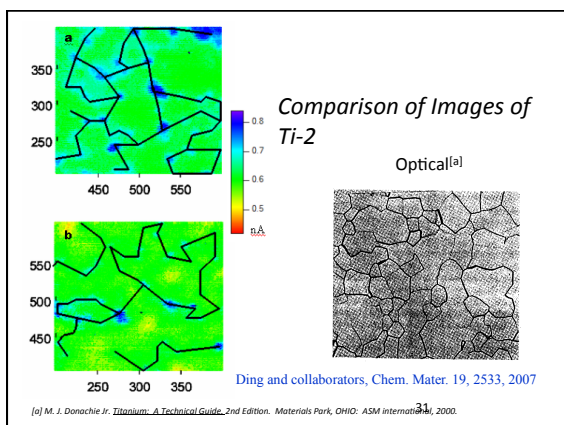


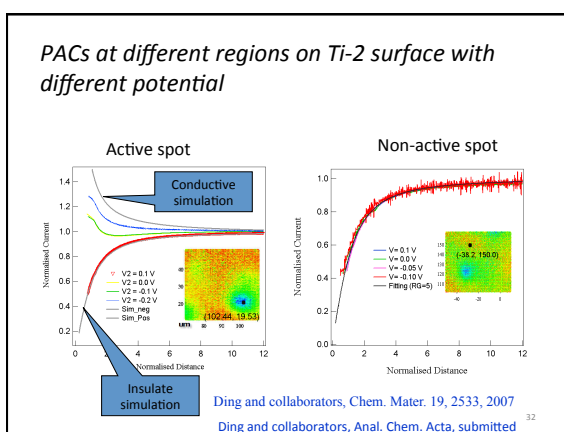
Ding group, *Anal. Chem.* in press 27

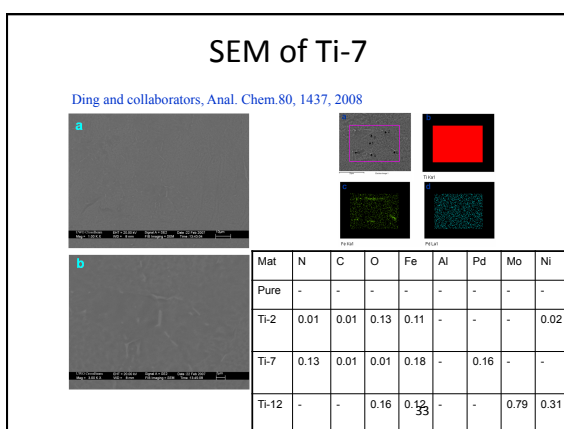






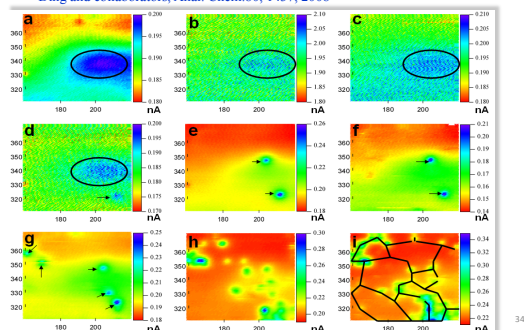






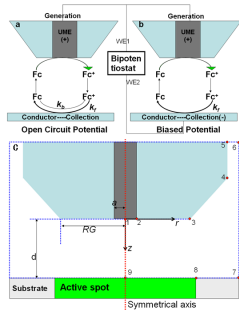
SECM images varied with bias potential
on Ti-7

Ding and collaborators, Anal. Chem.80, 1437, 2008



Kinetics of Fc⁺ at Ti-7

Ding and collaborators, Anal. Chem.80, 1437, 2008



Kinetics of Fc^+ at Ti-7—Approaching toward a non-active spot

Ding and collaborators, Anal. Chem.80, 1437, 2008

