
Physics Colloquium

University of Missouri-Kansas City

Department of Physics

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Q-Sense INC

Characterization of Biological or Material Interfaces Using Dissipative Quartz Crystal Microbalance (QCM-D)

There is a growing need for new technologies to quantitatively measure the surface properties of material interfaces. One particular technique: Quartz Crystal Microbalance with Dissipation Monitoring (QCM-D) measures several dynamic properties of materials and interfaces. Using QCM-D, changes in mass and viscoelasticity can be simultaneously monitored in real-time in air and in liquid. This technique has allowed scientists to achieve a more fundamental understanding regarding how dynamic biological, polymeric and other nano-scale materials behave on the molecular scale. Join us for a lively discussion that will begin with the fundamental aspects of this technique, followed by examples of some of the current applications, such as:

- Quantifying self-assembly processes
- Characterizing the interface of implant materials with proteins and cells
- Quantitatively following "smart material" changes (hydrogels, controlled release materials).
- Following the assembly of a lipid bi-layer
- Dynamically characterizing antibody-antigen interactions
- Studying nanoparticles assembly

January 18, 2008

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****Coffee at 3:10: Colloquium at 3:30 in Room 310****