



CHEMICAL AND BIOLOGICAL ENGINEERING DEPARTMENT SEMINAR SERIES

## ***Electrodeposition of Copper Interconnects: Transport and Reaction Mechanisms***

Presented by: Alan C. West, Department of Chemical Engineering at Columbia University

Time: Wednesday, October 28; 3:15 – 4:30 pm

Location: Perlstein Hall Auditorium

### **Abstract**

The electrodeposition of copper wires that serve to connect transistors on advanced logic chips is an important application of electrochemical engineering. The width of the smallest wires will approach 20 nm in the next few years. Based on an understanding of reaction mechanisms, it is possible to design electrolytes that enable successful, defect-free plating of these smallest features. The multi-scale nature of the design constraints is also demonstrated through transport considerations that are relevant on the scale of the entire wafer (300 mm). In both examples, we emphasize the role of surface-active organic additives on the nucleation and growth of copper.

### **Biography**

Alan West received his Ph.D. in Chemical Engineering from the University of California and his BS from Case Western Reserve University. He is currently the chair of the Department of Chemical Engineering at Columbia University and is the Samuel Ruben-Peter G. Viele Professor of Electrochemistry. His research interests include electrochemical microfabrication methods, electrochemical sensors, batteries, and fuel cells. He has worked in the area of copper metallization for the past decade, working closely with the industry.