

T_CSUH Bi-Weekly Seminar

Texas Center for Superconductivity at the University of Houston

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Bioconjugation onto Silicon Surfaces

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Room 102, University of Houston Science Center

12:00 Noon – 1:00 p.m.

Abstract

We have recently prepared robust monolayers on silicon or silicon carbide surfaces by surface hydrosilylation. We have demonstrated that these monolayers are the most protein-resistant and stable monolayers reported to date. We have also developed a method for nanopatterning on the above monolayers with 10 nm resolution, and introduced handles on the monolayers for bioconjugation. Meanwhile, we are developing “click” reaction based methods for efficient bioconjugation onto surfaces and nanoparticles. We have used the method to functionalize silicon and silicon carbide surfaces with carbohydrates. The research is relevant to the development of efficient silicon-neuron interfaces.

Bio

Professor Cai received his Bachelor of Science in Chemistry in 1986 and his Masters of Science in Organic Chemistry in 1989 from the South China University of Technology. In 1996 Cai received his Ph.D. from ETH-Zurich in Carbohydrate Synthesis. Cai was a Postdoctoral Fellow at the Institute for Quantum Electronics, ETH – Zurich in 1996-1999. In 2000, he began teaching at the University of Houston as an Assistant Professor in Chemistry and in 2006 he became an Associate Professor in Chemistry and the Texas Center for Superconductivity at the University of Houston.

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