JSU-UCSB PREM

Building your Research Program Through Other Funding

REU

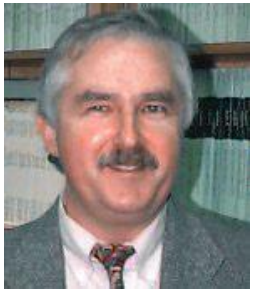
Interdisciplinary Center for NANOTOXICITY

High Performance Computational Design of Novel Materials

PREM Faculty MEMBERS

Program Director (PD)

Ray



Jerzy

Perkins

Yu

Hawker

Pak

Tirrell

Gao

Hill

JSU Team Members

Bazan

Heeger

Jaeger

Nguyen

UCSB Team Members

Our mission: To foster collaborative, interdisciplinary research and education in the areas of polymer self-assembly and biological nano-structured materials that will address the future needs of society and will increase the participation of minorities in material science research and education.

Materials Research Infrastructure Development

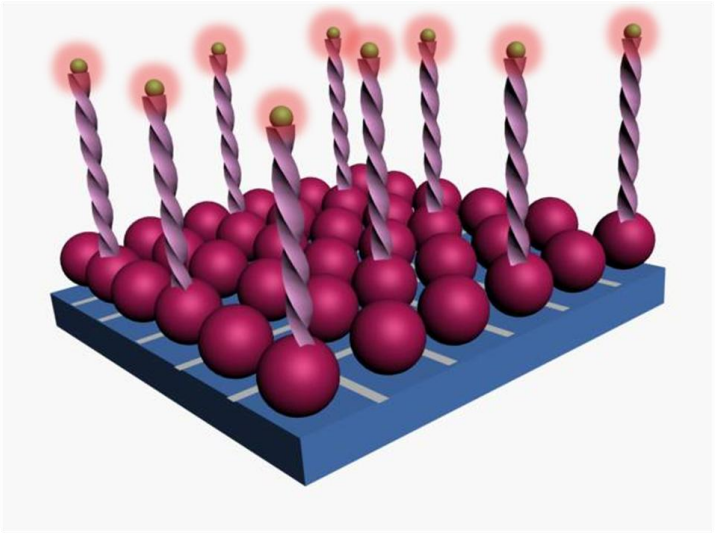
Boeckeler Instruments, Inc (45K)

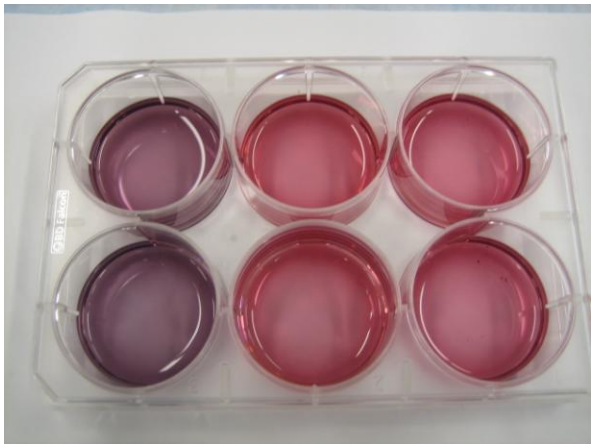
JY Imaging System with Confocal Raman Microscope (210K)

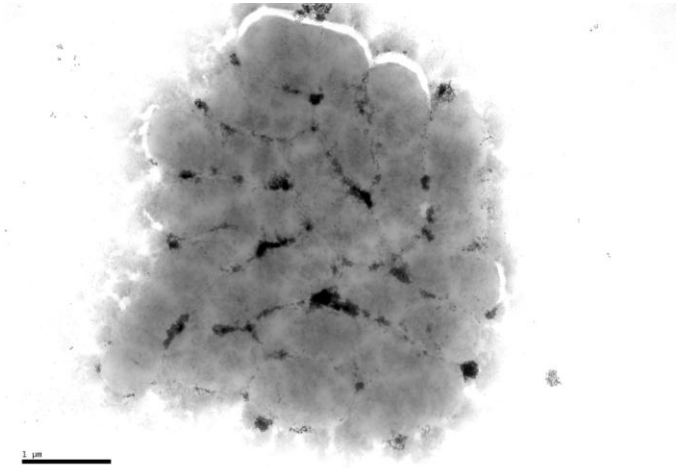
NETZSCH DSC (40K)

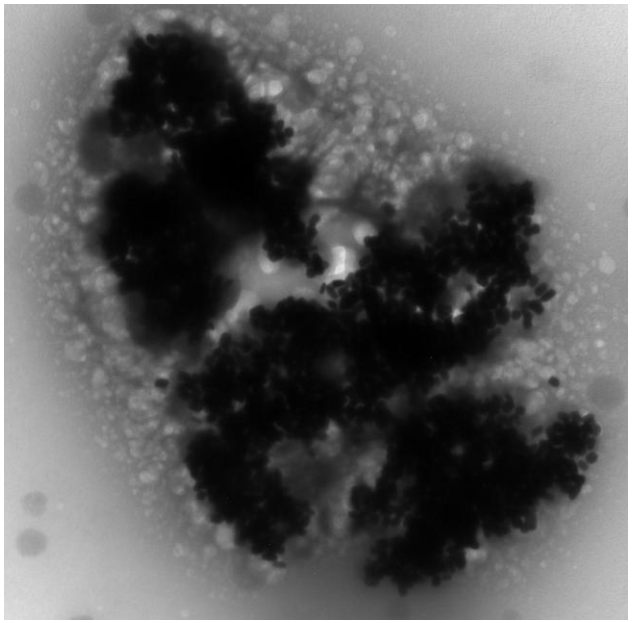
High Resolution Fluorescence Spectrometer (80K)

Nanostructured Material Interface to Biology

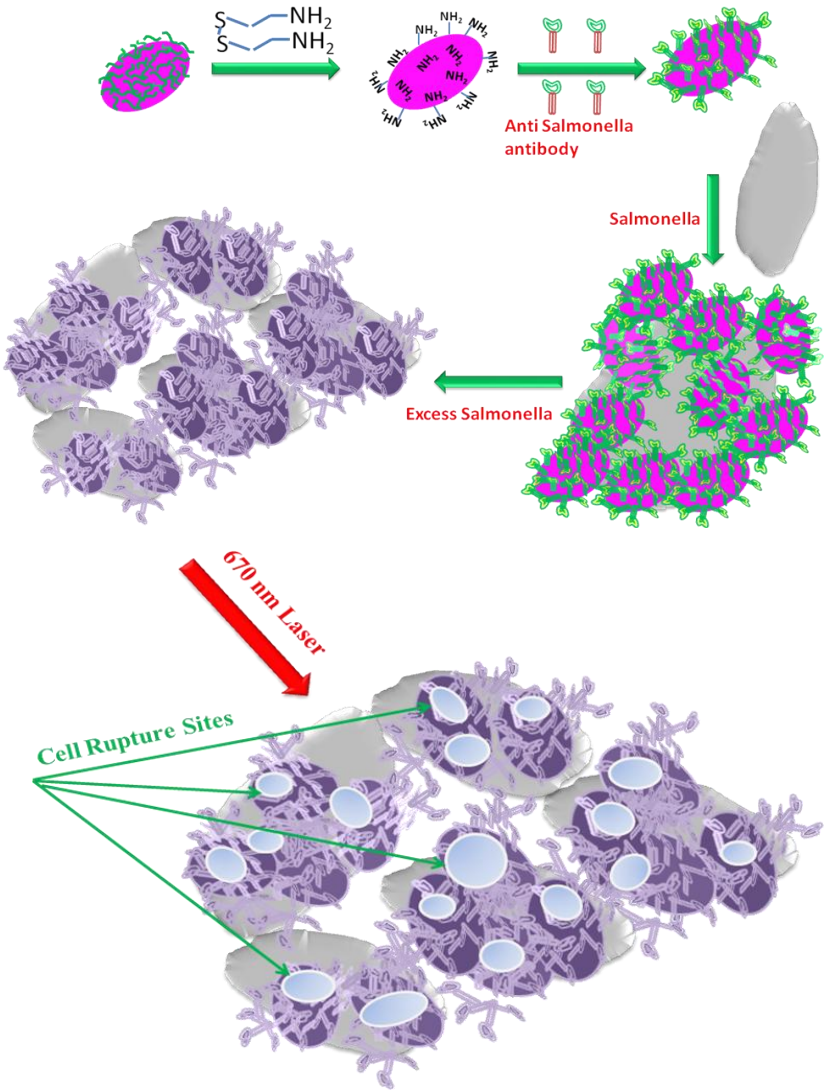


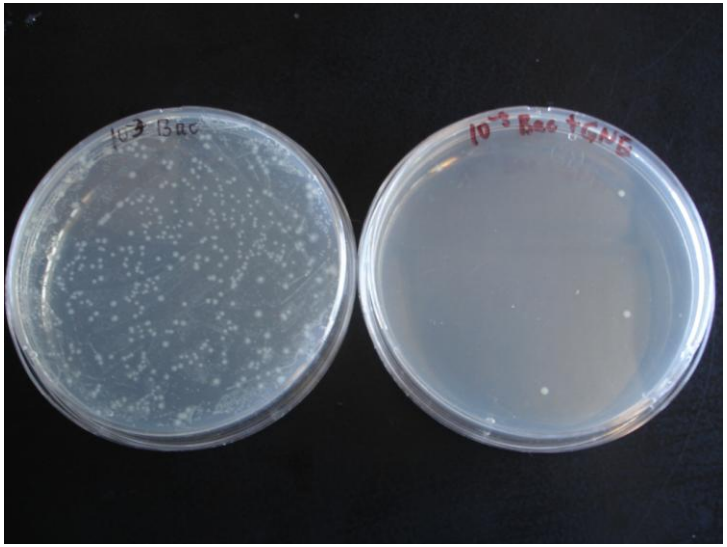


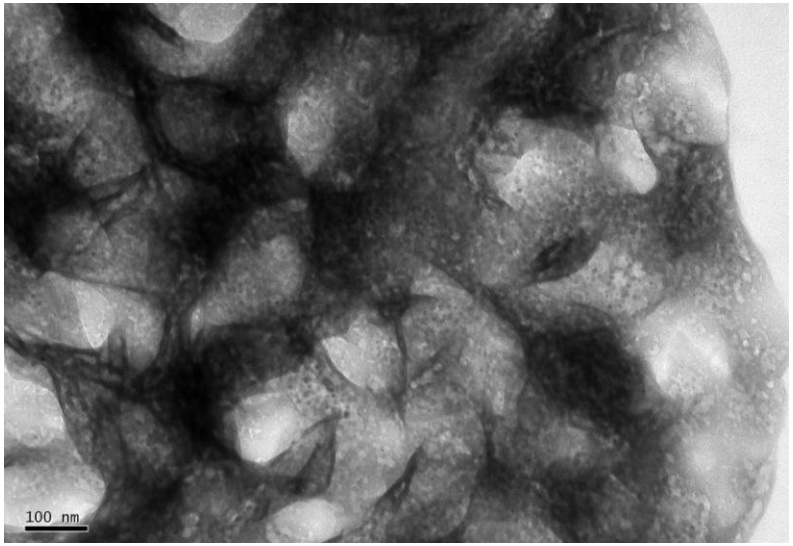




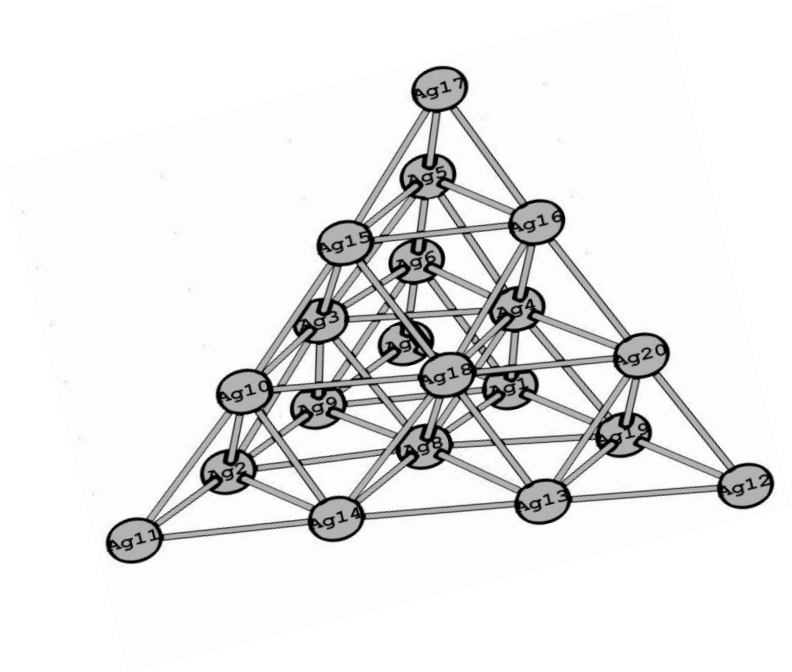
Nanomaterial for Photothermal Lysis

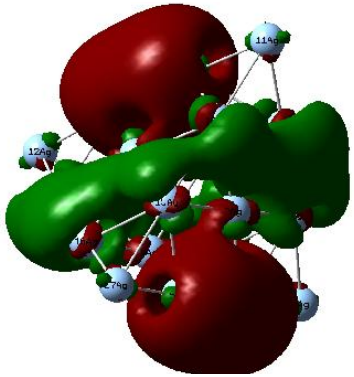


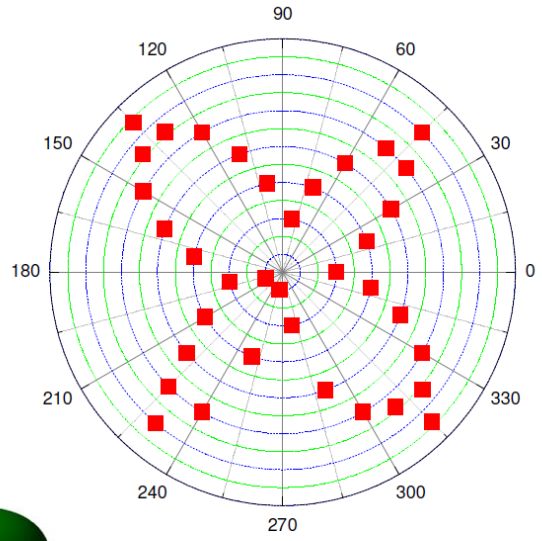


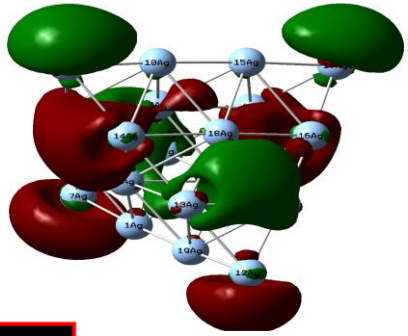


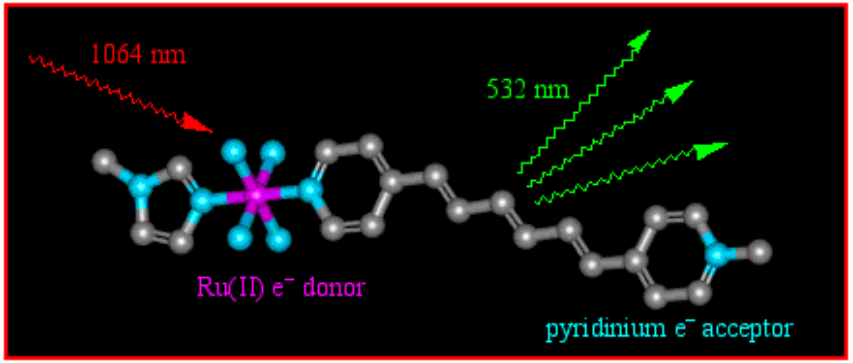
Theoretical understanding on NLO properties of molecular aggregates and clusters



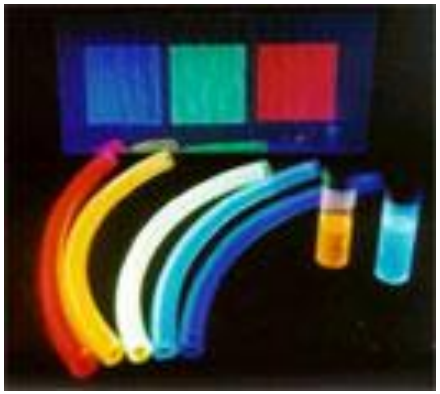


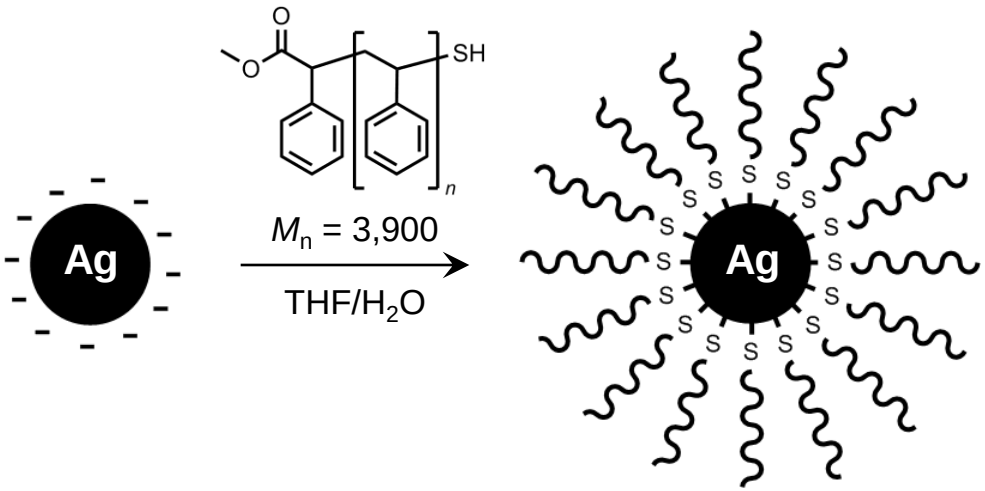


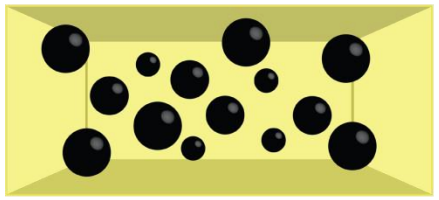




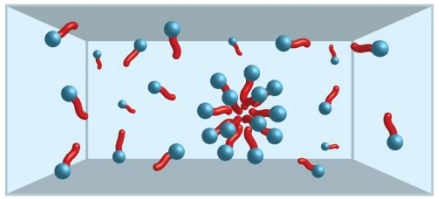
Fundamental understanding of organic semiconductor and photovoltaic systems



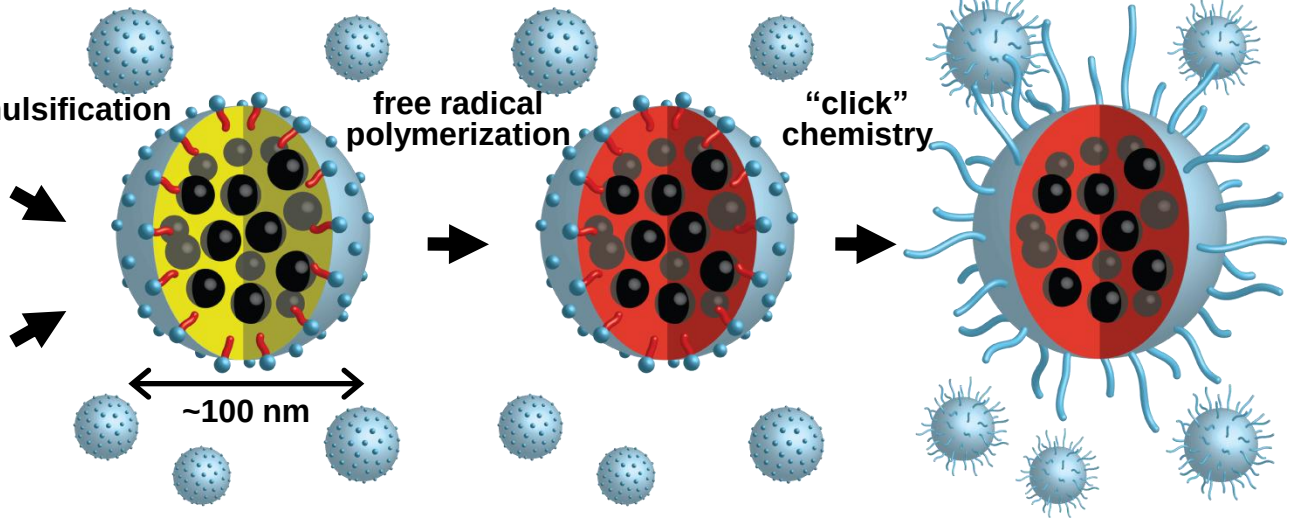




inorganic NPs dispersed in monomer



aqueous surfactant solution



monomer droplets with dispersed inorganic NPs

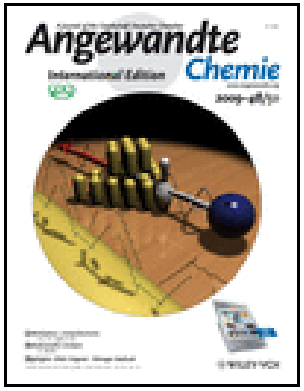
composite polymer-inorganic latex particles

functionalized composite latex particles

PREM is central to JSU becoming a leader in Materials Research

52 Publications in Last Four Years

Impact Factor 23.6



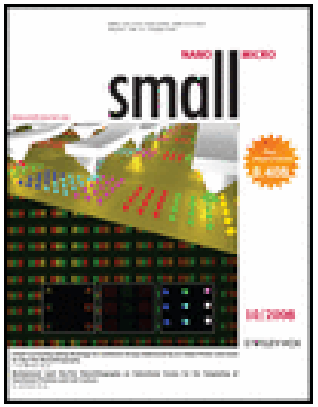
Impact Factor 10.5

Journal of the American Chemical Society

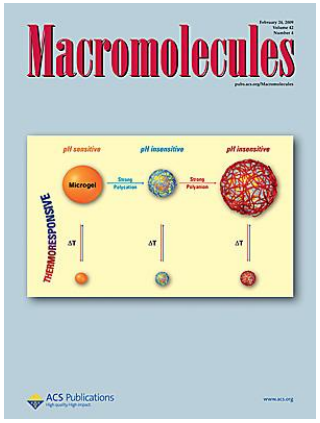
Impact Factor 8

PREM is central to JSU becoming a leader in Materials Research

Impact Factor > 5



Impact Factor > 3



PREM helps JSU to publish collaborative papers

We have published 16 collaborative papers

***Chemistry: A European Journal*, 2010, ASAP article**

***ACS Nano*, 2010, ASAP Article**

***J. Am. Chem. Soc.*, 2009, *131*, 13806–13812**

***Chemical Physics Letters*, *487*, 2010, 92-96**

***Chem. Phys. Lett.*, 2009, *481*, 94-98**

***Macromolecules, (communication)* 2009, *42*, 1425-1427**

***J. Environmental Science and Health*, 2009, *27*, 1-35**

***J. Am. Chem. Soc.*, 2008, *130*, 8038-8042**

***Chem. Phys. Lett.* 2008, *460*, 187-190**

***Chem. Phys. Lett.* 2008, *463*, 145**

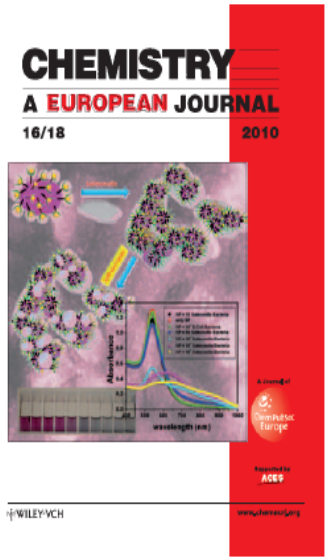
***J. Phys. Chem. A.*, 2008, *112*, 2870-2879**

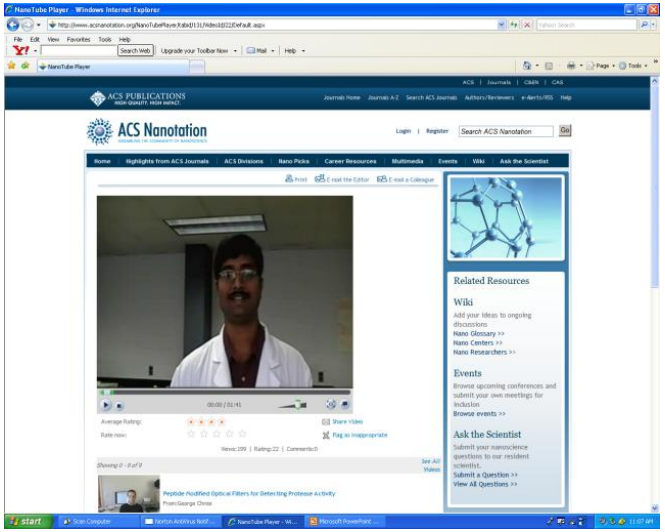
***Struct. Chem*. 2007, *18*, 827-832**

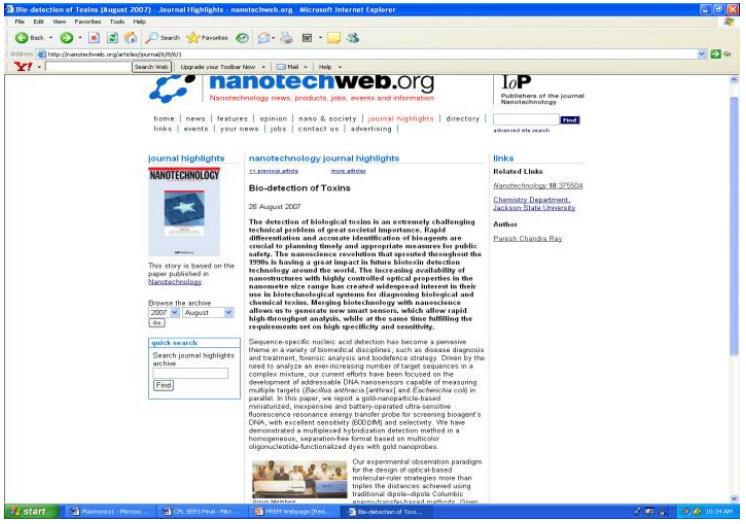
***Chem. Phys. Lett.* 2007, *434*, 12**

***Chem. Phys. Lett.* 2006, *431*, 321**

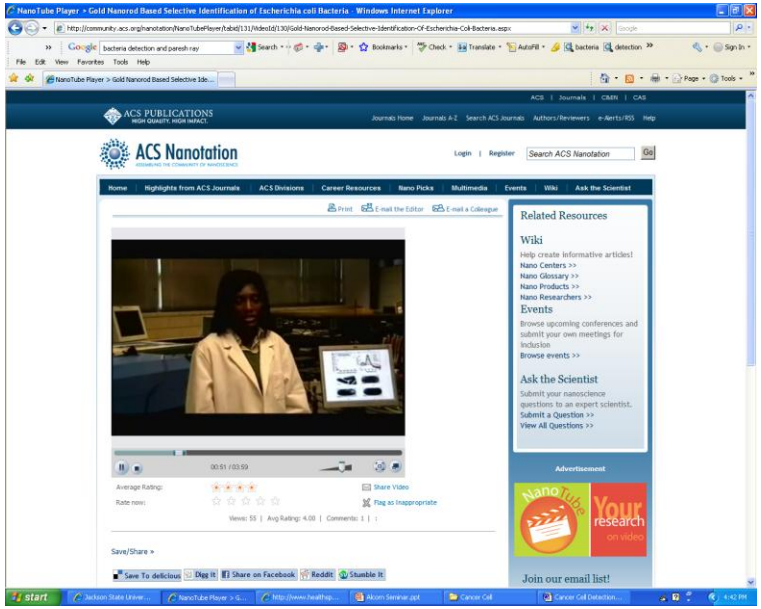
PREM is central to JSU becoming a leader in Materials Research







PREM is central to JSU becoming a leader in Materials Research



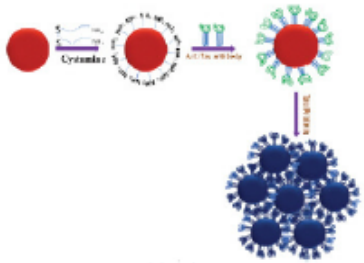
nanotechweb.org

TECHNOLOGY UPDATE

Aug 28, 2009

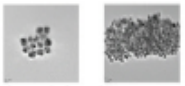
Golden opportunity for early detection of Alzheimer's

Researchers may have come up with a new, label-free and rapid way to detect a biomarker implicated in Alzheimer's. The technique, which relies on analysing the "two-photon scattering" spectra of gold nanoparticles to selectively detect a protein known to exist in patients with the disease, is over 100 times more sensitive than previous methods. It might even prove to be a way of diagnosing the disease early on.



Colour change

Alzheimer's disease destroys brain cells and causes problems with long-term memory loss, among other symptoms. In 2006 there were an estimated 26.6 million people suffering from the disease around the world, but this figure is expected to increase by up to four times by 2050. Unfortunately, there is no cure for Alzheimer's and the disease can only be diagnosed by post-mortem identification of senile plaques and neurofibrillary tangles in brain tissue. These tangles are twisted fibres made of tau protein aggregates in brain cells.



Before and after adding tau protein

Tau proteins make up the structure of neurones. Scientists have found that the cerebrospinal fluid of patients with Alzheimer's disease contains tau proteins that have a very different structure – they are highly phosphorylated – compared with the structure of

PREM is central to JSU becoming a leader in Materials Research

Most viewed papers in J. Phys. Chem. and Nanotechnology

One of the most cited papers in ACS Nano

Cover Page in Chemistry- A European Journal

News in Chemistry- A European Journal

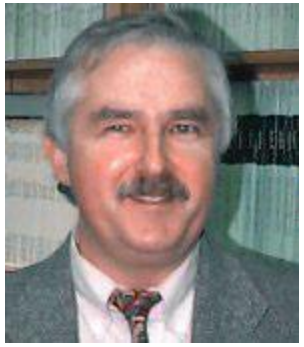
PREM is central to JSU becoming a leader in Materials Research

NSF-CREST Grant on Nanomaterial Toxicity, Started 2008

$5M for 5 Years

Interdisciplinary Center for NANOTOXICITY

Total 11 Faculty members Involved

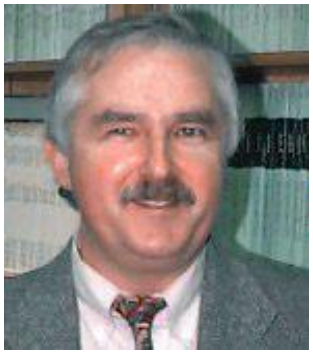


PI

DOD Funding on Design of Novel Materials, Started 2007

$3M for 3 years

Total 12 faculty members are involved



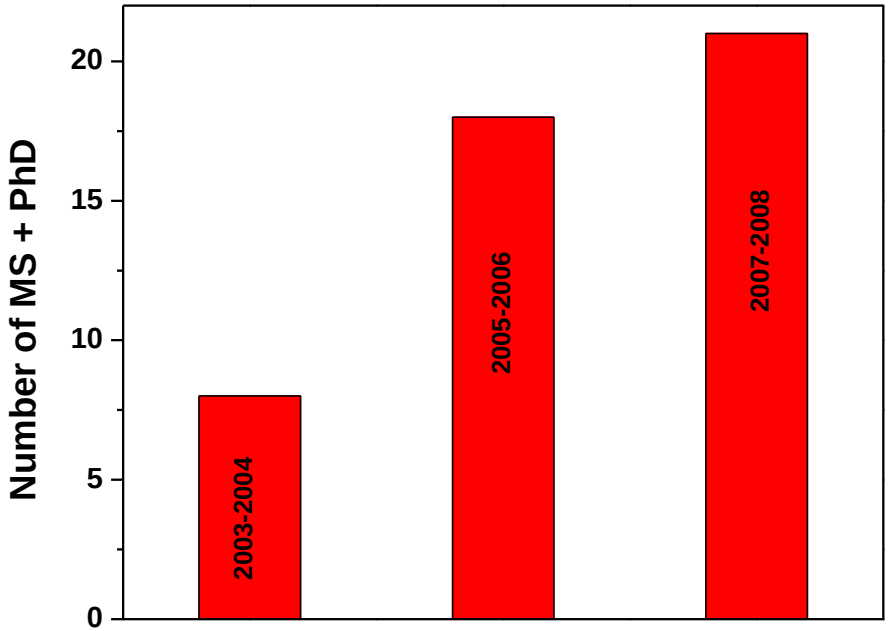

PREM Catalysed Institutional Research Direction

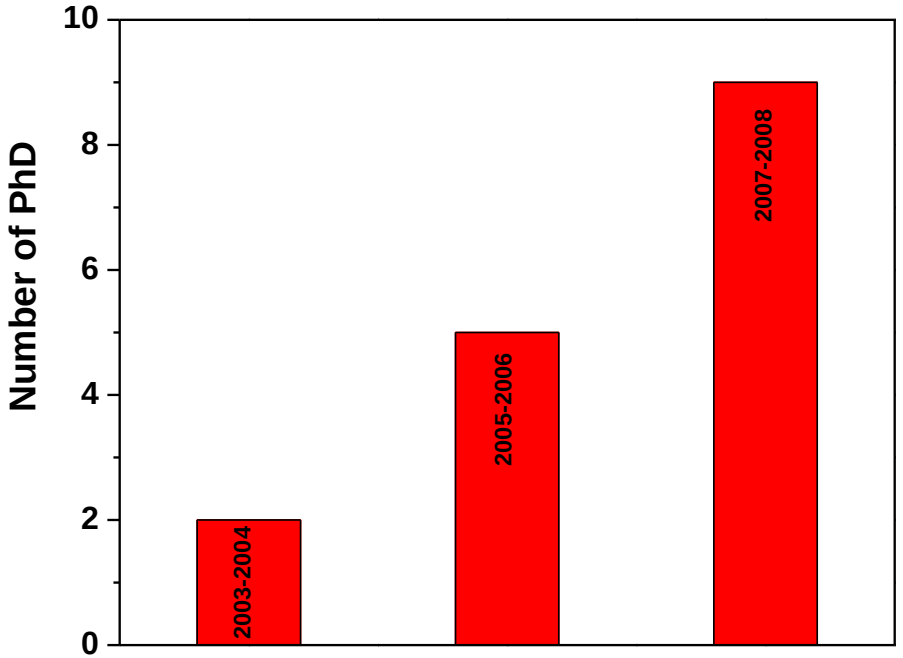
Funded Personal Projects

NSF, NIH, ARO, ARL, DHS, AFOSR

$1.5 M from More than 12 grants on Nanomaterials and other types of materials research.

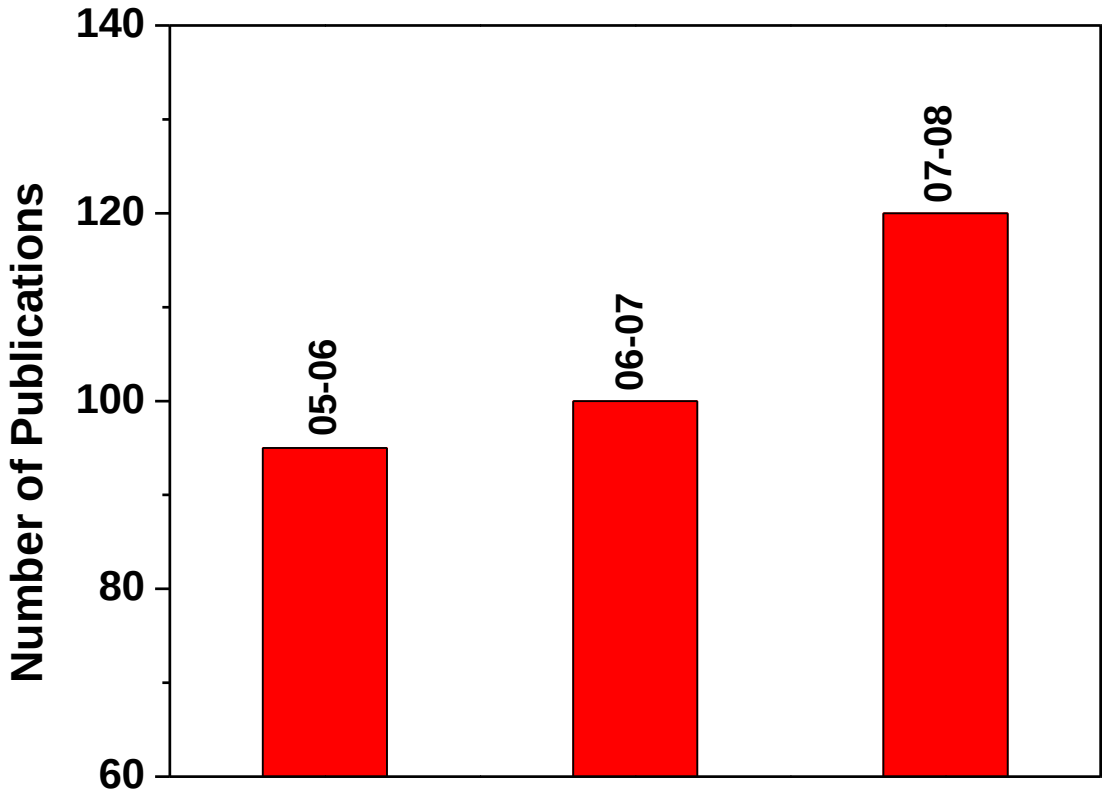
PREM helps JSU to produce more minority Graduates





Dramatic improvement correlates with PREM award

JSU Chemistry Department Publications, over 100

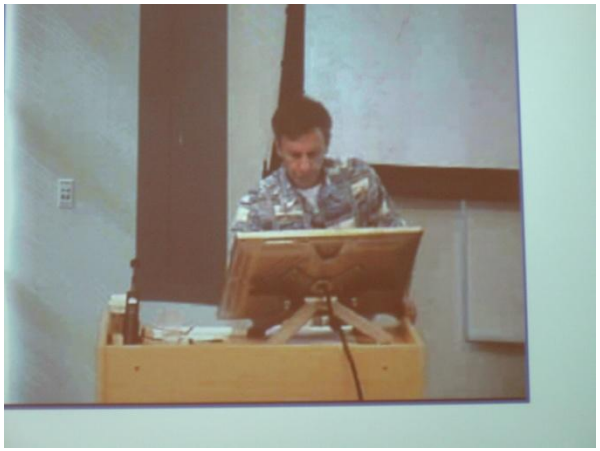


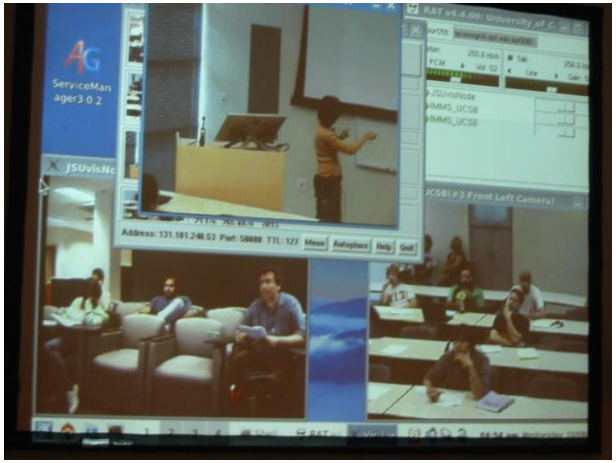
Dramatic improvement correlates with PREM award

PREM allows JSU Students to take UCSB material science class

Taught on Access Grid Network videoconferencing. Students enrolled earn JSU Credits.

Course taught by Professor Quyen Ngyuen and Prof. Guillermo Bazan at UCSB





PREM Helps JSU Students and Research Associates to participate in world class Materials research at UCSB

Undergraduate

Antonio Woods

Joshua Walker

Shemekia Braddock

Brittny Glasper

Willie Wesley

Ameera Haamid

Graduate

William Hardy

Birsen Varisli

Research Associates

Dulal Senapati

Anant Kumar Singh

Summer School for Local American K12 Teachers and Students

Chem. Eur. J., 2009, 15, 342

Eunnin Lee is currently a senior attending Clinton High School, Clinton, MS.

This year she plans to attend an institution of higher learning while studying in the field of chemistry. She is also an active member of the Technology Student Association, an organization that introduces students to businesses and innovations.

Ms. Lee won several awards at competitions at Regional and State levels.

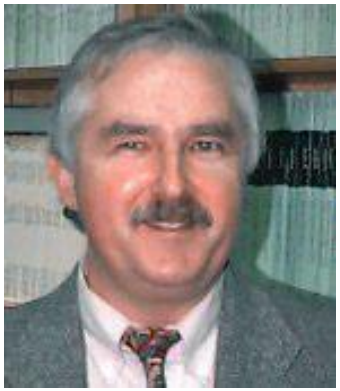
IEEE Sensor Journal, 2008, 8, 693

NSF-DMR-REU Grant on Nanomaterials, Started 2008
$300K for 3 Years

REU

Total 18 faculties are involved





PI

Graduated from Our Program

Assistant Professor
Phone: (239)590-7636
E-Mail: ysheng@fgcu.edu
Office: LIB 464J
http://faculty.fgcu.edu/ysheng

Tulane University

PhD Students Graduated From Our Program

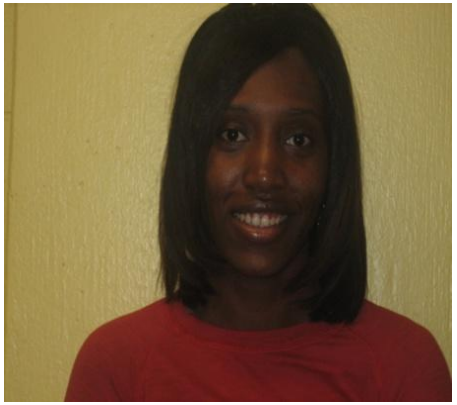
Research Associate
University of Michigan

Research Associate

University of Göttingen

Research Associate

University of Oklahoma



Army Research Lab

MS Students Graduated From Our Program

PhD Student

Princeton University

PhD Student

University Of Florida

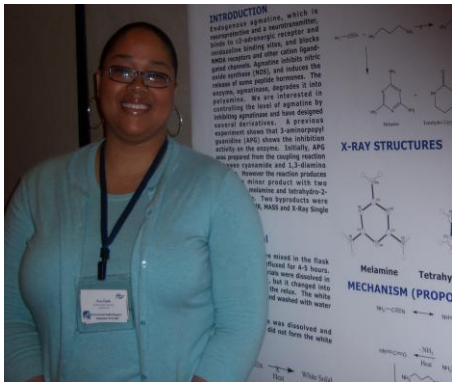
Industry

PhD Student

Ohio-State University

PhD Student

University of Pittsburgh



Teaching Profession

Undergraduate Students Graduated From Our Program

Medical School

Graduate Student
UW Milwaukee

Dental School in
University of MS

PREM Seminar Series

Professor George Schatz

Professor Martin Moskovits - UCSB

Provides an enrichment program which includes visiting speaker series by inviting material science experts from academia and industry. We believe that this seminar from a cutting edge material scientist can be a role model for the minority students at JSU.

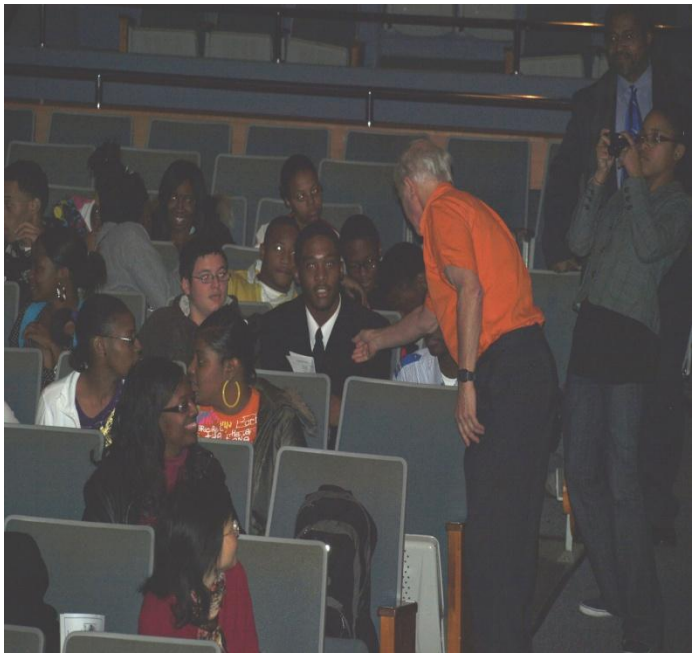
Professor Maija M. Kukla

Professor Peter J. Stang

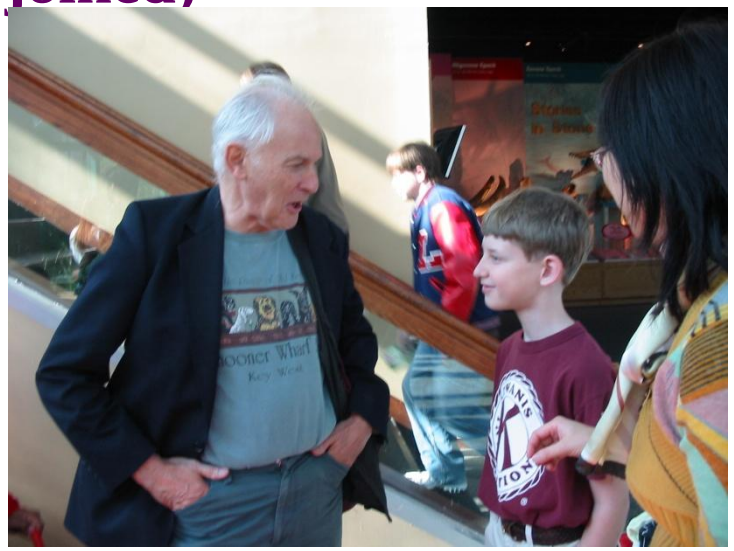
Sir Harold (Harry) Kroto

Noble Laureate's Inspiration Lecture for K12 (More than 500 K12 Participant Joined)

Professor Harry Kroto – FSU & UCSB DVP

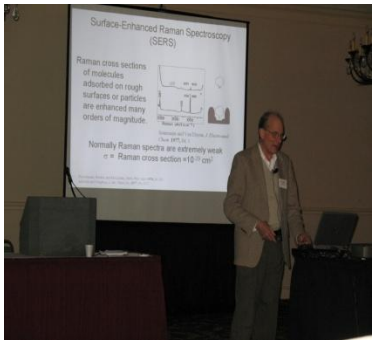


Nanoday Activity in Science Museum (Around 400 local participants joined)

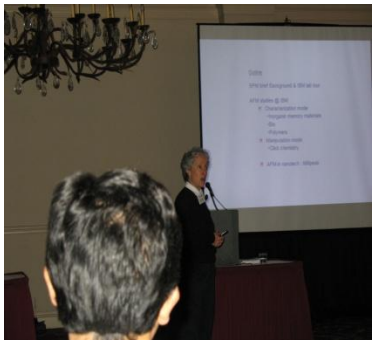


PREM Conference

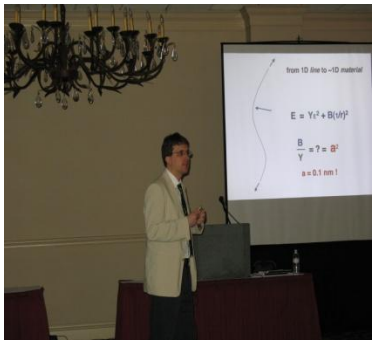
Prof. Susan Muller, UC Berkeley



Prof. Louis Brus, Columbia University



Prof. Jane Frommer, IBM Almaden Research Center



Traian Dumitrica, University of Minnesota

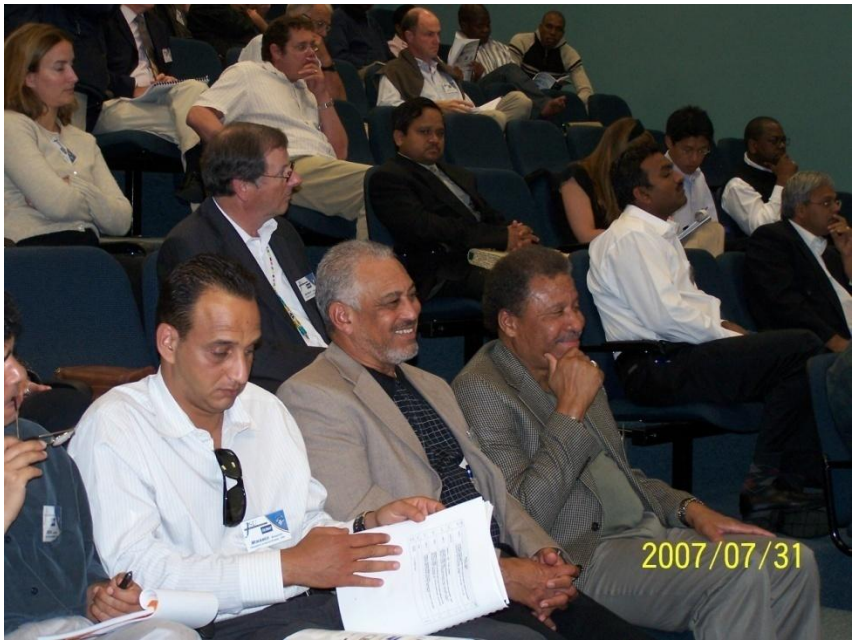
Prof. Steven G. Boxer, Stanford University

Prof. Karen L. Wooley, Washington University

Prof. Craig Hawker, UCSB

Prof. Susan B. Sinnott , University of Florida

USCB-JSU Collaborative International Conference at Zululand, South Africa



Prof. Mathias Brust, University of Liverpool, UK

Prof. David S McLachlan, University of Stellenbosch, South Africa

Prof., Paul O Brien, University of Manchester, UK

Prof. David J Cole-Hamilton, University of St. Andrews, Scottland

Prof. Heather D Maynard, UCLA

Conclusions

PREM has *catalysed* Materials Research at JSU.

PREM helps JSU to be at the frontier in Material Research.

PREM helps JSU Chemistry Department to dramatically increase the number and quality of publications each year – over 120 in 2008.

PREM helps JSU to produce more minority graduates.

PREM started and drives the annual JSU Material Science Symposium.

Conclusions

PREM helps JSU Students to participate in world class research at UCSB.

PREM helps JSU Students to take UCSB material science courses, taught by world class scientists.

PREM allows access to the state-of-the art facilities at UCSB and other MRSEC sites.

PREM helps JSU to publish collaborative papers in high impact factor journals.

I thank all of you for your kind attention

Any Question or Comments?