**RESEARCH SNAPSHOT**

**National Science Foundation (NSF) I-Corps from FAMU takes 1st place in final presentation at recent NSF workshop held in Atlanta, GA**

The FAMU National Science Foundation (NSF) I-Corps team was judged by all the instructors attending the closing workshop on Friday, May 29, 2015 in Atlanta, GA. Among the 21 university teams participating, including Harvard, FAMU won first place. Vice President for Research, Timothy E. Moore, Ph.D. noted of this recognition: “We, in the Division of Research, are extremely proud of you and your achievement; we are always delighted to serve you. I commend you and your team for your hard work. Your collective efforts reflect great credit upon you, your team and Florida A&M University. Talent, heart, character—these are the ingredients for success. Clearly your team has all of these traits. FAMU is proud to have you in OUR family. We salute you on a job well done!”

Pictured is the winning FAMU team, the NSF I-Corps Director and the instructors after the recognition. Led by Y. Ping Hsieh, Ph.D., Principal Investigator and Professor, Center for Water and Air Quality in the College of Agriculture and Food Sciences (fifth from left); along with Xiaoling Ding, Ph.D., Entrepreneur Lead (third from left); and Lawrence Tinker, Ph.D., Mentor (sixth from left) form the winning team with Multi-Element Scanning Thermal Analysis (MESTA) Technology at FAMU.
Overview: Holistic (in contrast to the partial solvent extraction) chemical analysis of heterogeneous samples in a complex matrix has been difficult due to the limits of separation technology. An alternative approach is through bulk elemental analysis. However, this provides little information about the chemical nature of the compounds in a sample. FAMU developed the Multi-Element Scanning Thermal Analysis (MESTA) technology to fill this analytical gap. We successfully applied it to the direct analysis of aerosols with sensitivity, precision, accuracy and cost-effectiveness. MESTA characterizes the thermochemical properties of the compounds, in terms of their quantitative C, N, S and H thermograms, in heterogeneous solid, liquid or mixed samples.

FAMU researchers realized that MESTA is a powerful tool in the analysis of energetic materials such as petroleum, biofuels, coals and oil sands. For example, in a crude oil analysis MESTA can quickly determine the quantity of possible petroleum end products and their associated polluting impurities (contents and forms of Sand N compounds) in each end product. Similar analysis can be applied to oil sands, biofuels and coals. In academic research of geo, soil and environmental sciences, MESTA can be applied to many heterogeneous samples and reveal important chemical information that is not available previously. Researchers currently use sophisticated methods such as the solid-state NMR, X-ray photoelectron spectroscopy (XPS) and X-ray absorption near edge structure (XANES) to get comparable information but those sophisticated methods are costly and not available to most workers. MESTA is relatively simple and can be used in the routine inspection of products of food and pharmaceutical industries for quality control and assurance purposes. Government agencies can use the MESTA technology for routine inspection of heterogeneous substances for security and regulatory purposes.

Intellectual Merit: The development of the MESTA technology fills a gap in the holistic (in contrast to the partial solvent extraction or the total bulk elemental) chemical analysis of heterogeneous samples of solids, liquids and their mixtures. It is an alternative to the sophisticated methods such as the solid state NMR, X-ray photoelectron spectroscopy (XPS) and X-ray absorption near edge structure (XANES), which are costly and not available to most workers. MESTA reveals the thermochemical property of compounds in a heterogeneous...
sample with sensitivity, precision, accuracy and cost-effectiveness. Application of the MESTA technology will fill the gap of the analytical needs of industry, academic research and government agencies.

**Broader Impacts:** Substance characterization and identification are keys to many security issues of our society. The cost and tediousness of some current analytical procedures often prevent us from sufficiently inspecting suspected substances. MESTA can provide a solution to many of such problems. For example, a port authority can quickly examine the chemical property of suspected substances for quality assurance of the goods and for security reasons. MESTA technology, therefore, can provide a simpler and cost-effective solution to improve public safety and quality assurance of the consumer goods.

**Keywords:** heterogeneous samples, multi-element, thermal analysis, energy substances, industrial product inspection, academic research

For more information, please contact: Y. "Ping" Hsieh, Ph.D., Professor, Center for Water and Air Quality, CAFS and Principal Investigator at yuch.hsieh@famu.edu.
Florida Agricultural and Mechanical University hosted the International Workshop on Biologically Enabled Self Assembly in collaboration with the University of California - Davis and the International Institute for Complex Adaptive Matter (May 20 to May 22, 2015). The keynote speaker was Ned Seeman of New York University, known as the father of DNA (Deoxyribonucleic acid) technology. The workshop showcased one of FAMU President Mangum’s University priorities: establishing collaborative relationships with leading scientists from around the world.

“Alzheimer’s... “The new administration wants to raise the research standard here at FAMU. And having very good research is also very helpful to teach students,” said FAMU physics Professor Mogus Mochena. He added the workshop focused on DNA’s potential as a blueprint for useful non-living structures... such as solar power or the cures for different diseases.

For instance, Dr. Mochena explained, DNA technology might be able to unlock the secrets of degenerative diseases, such as Alzheimer’s. “The cause for that is what are called amyloid fibrils, and these are protein structures. So if you understand how proteins assemble, how they come together, then you could have an answer for this important problem,” Mochena said.

Researchers have also used self-assembled proteins for tissue growth and healing. Abena Ojetayo, FAMU’s Chief Sustainability Officer, also believes that this promotes FAMU’s diversity: “It cuts across the disciplines. And the Sustainability Institute at FAMU was created to catalyze these kinds of interactions, to encourage the kind of interdisciplinary work that forces you out of your labs into connections, into conversations with others in different fields,” Ojetayo said. FAMU’s professors, Mogus Mochena, Ph.D. and Lekan Latinwo, Ph.D. served as chairs for the workshop.

The conversations unfolded over three days, with 20 scientists giving presentations and meeting with FAMU students and faculty. **Sponsors:** Institute for Complex Adaptive Matter, University of California, Davis - Division of Research, National Science Foundation, FAMU’s College of Science and Technology, Sustainability Institute and Division of Research.
Participants at the FAMU-hosted Biologically Enabled Self-Assembly International Workshop came from around the globe: New York University; University of California, Davis; University of California, Los Angeles; University of California, Riverside; University of California, Santa Cruz; University of Michigan; Massachusetts Institute of Technology; Northwestern University; University of Cambridge, United Kingdom; Peking University, Beijing, China; University of Washington; North Carolina State University, National Institutes of Health, University Of Queensland, Australia; Lawrence Berkeley National Laboratory; Florida State University; along with Florida A&M University. Images by O.S. Lamar Sheffield, FAMU DoR
As a public institution of higher education, Florida A&M University routinely networks and collaborates with international partners on research, education and services through the establishment of international exchange programs, attendance at conferences abroad, and contracts with foreign entities/individuals. It is FAMU policy that teaching, research, and service will be accomplished openly and without prohibitions or restrictions on the policy publication and dissemination of the results of academic and research activities while complying with U.S. export law and regulations and pursuing applicable exemptions.

FAMU is committed to compliance with the provisions of export control established by the U.S. Department of Commerce, Export Administration Regulations (“EAR”); the U.S. Department of State International Traffic in Arms Regulations (“ITAR”); the Arms Export Control Act (“AECA”); and the Department of the Treasury Office of Foreign Assets Control (“OFAC”). FAMU is responsible for educating its employees, students, and contractors regarding U.S. export control laws and regulations.

For more information, please contact our Associate Vice President for Research, Dr. Charles Weatherford at 850.412.5091.
The FAMU College of Pharmacy and Pharmaceutical Sciences (CoPPS) is committed to preparing students to pursue careers in pharmacy practice, research and community care. This year, the CoPPS made efforts to expand care to underserved communities through its Center for Health Equity (CHE) under the new global health disparity initiative. The new initiative prepares students by providing a “world-view” perspective regarding their role as healthcare professionals.

Community Events and Health Equity

In March, the CHE sponsored an educational tour to the University of KwaZulu-Natal School of Pharmacy in Durban, South Africa. The tour provided insight regarding work collaborative with KwaZulu-Natal.

Otis W. Kirksey, PharmD, R.Ph., CDE, BC-ADM, Professor and Eminent Scholar Chair, Pharmacy Practice, has developed a successful Diabetes Management Program for residents who live in medically underserved areas of Leon County. FAMU provides medication therapy management services for a local community health center where faculty, students and a research fellow, funded by the Leon County Commission, work collaboratively to improve diabetes care.

Students in their fourth-professional year (P4s) actively participate in health fairs throughout the State of Florida at CoPPS' instructional sites in Tallahassee, Jacksonville, Tampa and South Florida. In June 2014, a major community health fair and health information exchange was held at the Walker-Ford Community Center in an economically disadvantaged area of Tallahassee. The students provided free screenings for blood glucose, cholesterol levels, triglycerides, blood pressure and Body Mass Index (BMI), and medication reviews to more than 180 participants. They also provided health screenings at the Seventh Annual Diabetes Walk sponsored by the Prince Hall Shriners of Ahmed Temple. Healthcare professionals were available to sign up participants for health insurance, free immunizations through the Neighborhood Medical Center (a federally qualified health center). “The services provided by our students at local and state community events are invaluable. They promote both health and disease awareness and demonstrate the commitment of the College of Pharmacy and the Center for Health Equity to improving the health and quality of life of our surrounding communities as well as sensitizing our students to the importance of community engagement and service.” noted Dr. Kirksey.

Recently, the FAMU Chapter of Phi Lambda Sigma (Pharmacy Leadership Society) hosted the Eighth Annual Joshua Hillman Health Initiative (JHHI) on the campus of FAMU. This annual
event in honors Joshua Hillman, who died prior to graduation from the CoPPS' program. The JHHI provides screenings with the assistance of local healthcare providers and also disseminates health information to students and surrounding communities. This student driven health fair was organized by PLS under the direction of Antonio Carrion, PharmD, Assistant Professor of Pharmacy Practice.

Research

The College of Pharmacy and Pharmaceutical Sciences conducts research dedicated to improving health. The College recently received a $13 million dollar grant for research and infrastructure. Additional grants have been received for further research for oncology, HIV medications, diabetes and diabetic wound healing and other relative health areas. This funding is primarily directed towards oncology among FAMU researchers. Other continued research includes neurological and mental health issues, Parkinson’s disease, medication adherence, drug discovery and drug therapy delivery systems. The College has expanded its research enterprise to include faculty development and grant writing for the upcoming academic year. At present, the College has received more than 22 million dollars in contracts and grants.

Interprofessional Activities

For years the College of Pharmacy has emphasized the importance of interprofessional education. Currently, FAMU is the only College of Pharmacy that encompasses a fully accredited Institute of Public Health (IPH) that offers the MPH and DrPH degrees. Monthly grand rounds include the discussion of actual patient cases through the CoPPS’ Center for Health Equity for pharmacy, public health, nursing, social work and psychology students. This impactful experience developed into a pilot program that will be offered as an elective in 2016.

Looking Forward

Multiple innovative initiatives are planned for the CoPPS for the academic year 2015-16. They are in the process of curriculum evaluation to ensure that they are 100% consistent with the recently approved 2016 ACPE accreditation standards. In addition, the College is in the process of developing a robust research enterprise; which includes a new community-based participatory research agenda for underserved communities throughout the State of Florida.

For more information regarding the FAMU Center for Health Equity’s Diabetes Prevention Program, please contact Otis Kirksey at (850) 561-2688 or otis.kirksey@famu.edu.

Contributions to this article by James L. Moran, Ph.D., Assistant Director, Advancement/Alumni Affairs, FAMU CoPPS

Images provided by Dr. Otis Kirksey, FAMU CoPPS
Mrs. Patricia Patrick (pictured left) retired on May 29th after 35 years of state service. Mrs. Patrick served as Associate Director, Contracts & Monitoring, Office of Sponsored Programs. The DoR wishes Mrs. Patrick a long and happy retirement.

Mr. Reis Alsberry has accepted the position of Director, Office of Technology Director commencing August 2015. A Patent Licensing Associate, Mr. Alsberry received a J.D. in 2003 from the University of Richmond School of Law, a B.E. degree in Civil Engineering in 1998 from the University of Virginia, and comes to FAMU from the Office of Research at Old Dominion University, Norfolk, Virginia.

Ms. Sharon Snelling, Administrative Assistant, Office of Technology Transfer, was awarded her Associate of Arts Degree from Tallahassee Community College on Saturday, May 2, 2015.

Ms. Teresa Henry, Senior Grant Specialist, Office of Contracts and Grants, was awarded her Associate of Arts Degree from Tallahassee Community College on Saturday, May 2, 2015.

The FAMU DoR sponsored seven principal investigators’ participation at the National Science Foundation (NSF) Grants Conference (above); they were: Drs. Katie Brodhead, Tarik Dickens, Michael Grayson, Ajith Gunaratne, Jessica Humann, Pedro Moss and Anita Nag. This two-day conference was especially for new faculty, researchers and administrators to gain key insight into a wide range of current issues at NSF including the state of current funding; new and current policies and procedures; and pertinent administrative issues. FAMU also provided a synopsis of current research funded by NSF.

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2015 University Faculty Planning Conference

- August 11: New Faculty/Tenure Track Faculty
- August 12-13: All Faculty

All Faculty are expected to attend!!!

SAVE THE DATE