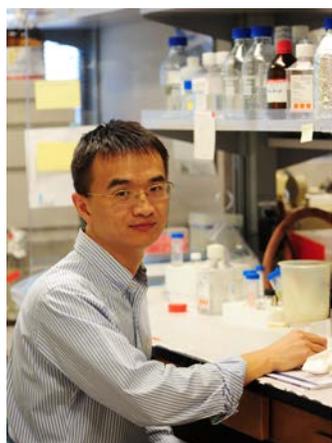




University of Massachusetts
Department of Food Science Newsletter
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Two New Faculty Joining UMass Food Science

We are very pleased to announce two new faculty, **Guodong Zhang** and **David Sela** who will be joining our Department in the fall of 2013. These faculty were chosen from one of the most competitive searches in the history of our Department. Their hiring will allow us to continue expanding our focus on Foods for Health and Wellness as they have very strong biological background along with degrees in Food Science. Both Guodong and David will give research presentations at next year's SRA meeting.



Guodong Zhang's research focus is studying the impact of dietary bioactive compounds on phase II metabolizing enzymes, anti-inflammation, and lipid signaling and angiogenesis (formation of new blood vessels). His laboratory has expertise in isolation of bioactive compounds, analysis of their metabolic products and determination of a variety of biological activities. His research interests include two major areas: (1) understanding the molecular mechanisms by which omega-3 fatty acids reduce the risks of angiogenic diseases such as cancers and macular degeneration, and (2) discovery and characterization of novel anti-angiogenic dietary compounds for disease prevention. Guodong received his B.S (1999-2003) in Chemistry from Xian Jiaotong University, M.S. in Chemistry (2003-2005) from the National University of Singapore, and a Ph.D. in Food Science (2005-2010)

from the University of Wisconsin-Madison with Prof. Kirk L. Parkin. He held a postdoctoral position (2010-2013) at the University of California-Davis with Prof. Bruce D. Hammock.



David Sela's research program is focused on the means by which dietary molecules influence the population structure, and often function, of the microbiota that colonize the gastrointestinal tract of humans. To this end, Dr. Sela brings several years of experience investigating naturally occurring bioactives in milk that promote a beneficial microbiome in infants and potentially adults. Dr. Sela's lab examines host-microbial interactions mediated by nutrition at several levels of resolution. He is interested in the genomics and physiology of isolated microbial commensals, community-level form and function of the microbiome, as well as quantifying parameters of subject health in response to dietary manipulations of their microbiome. In addition, Dr. Sela is broadly interested in the microbiology of

fermented foods/beverages and the sanitary conditions of their production environment. Dr. David Sela is joining the Department of Food Science at UMass after conducting postdoctoral research at the Foods for Health Institute at UC Davis. Previously, Dr. Sela earned a M.S. in Food Microbiology and Ph.D. in Microbiology.

Chee-Teck and Yeo Tan Food Science Graduate Fellowship



Chee-Teck ‘Dick’ Tan received his PhD under the guidance of Jack Francis in 1961. His dissertation was entitled “Color and pigment changes in spinach processed by high temperature-short time and conventional methods”. After graduation, Dick went onto a very successful career at International Fragrances and Flavors. Dick passed away in 2005. Earlier this year we received notice that UMass Food Science was the beneficiary of

the estate of Dick’s wife, Deanna Yeo Tan. The gift is estimated to be in the range of \$700,000. Dick was originally from Zhangzhou, China and studied at Xiamen University. The Tan’s requested that this gift be used to support a student from Xiamen University to obtain a PhD at UMass Food Science. This is a tremendously generous gift from the Tan’s that will create an endowment that will not only give a unique experience to a Chinese student but will also be a huge benefit for our research program as the gift will support a PhD student for many years to come. If anyone remembers Dick or has photos, I would appreciate it if you could share them with the Department so we could include them in future communications.

UMass Food Science to Receive Major Pilot Plant Upgrade from Mass Life Science Center



The Massachusetts Life Science Center has presented UMass Amherst with over \$100 million in capital grant funding. This funding will be used to establish 3 research centers: Personalized Health Monitoring, Models to Medicine and Bioactive Delivery. Personalized Health Monitoring will focus on developing nanotechnology and large dataset management for low-cost sensors that can be used in both the healthcare and food industries. Models to Medicine will focus on translating basic protein research into new therapeutic targets for Alzheimer’s, Parkinson’s, cancer and

infectious diseases. Bioactive Delivery will combine expertise in food science, chemistry, engineering and the biological sciences to develop novel mechanisms to improve the efficacy of drugs and bioactive food components. Food Science will play an integral role in two of these centers. Sam Nugen will sit on the Personalized Health Monitoring advisory board to represent the role of biosensors in foods. Eric Decker will sit on the Bioactive Delivery advisory board to provide perspectives on delivering nutrients into foods and supplements

Over half the funding will be used for instrumentation including: advanced imaging, mass spectroscopy, NMR, MRI, roll to roll electronic device manufacturing, 3-D printers and a human user study center. The Food Science Pilot Plant will receive \$2 million for equipment for bio-separation and encapsulation. This will include pilot plant scale supercritical CO₂, reverse osmosis, continuous centrifugation, wet mill and nano-crystallization, benchtop and pilot scale spray drying and chilling with agglomeration, UHT pasteurization as well as support lab instruments for characterization: SEM with elemental analysis, powder laser diffraction, automated particle characterization and gas sorption surface area analysis.

This funding will truly redefine our pilot plant and strengthen our capabilities for research with bioactive compounds and development of delivery systems for food. We expect the renovation to be completed sometime in the middle of next year.

UMass Food Science at IFT



UMass Food Science had another great showing at IFT. Over 40 people attended the breakfast and had a great opportunity to catch up with fellow Alumni. Our students were amazingly successful in the research competitions. **Shintaro Pang** received 3 first place awards from the International Nanoscience Conference, Toxicology and Safety Division and Society of Laboratory Automation and Screening poster competition. **Wisiani Wijaya** won the Undergraduate Research Competition. **Bicheng Wu** won 1st place in the Food Chemistry poster competition, **Fang Tian** received 3rd place in the Food Packaging Division poster competition, Yingyi Mao received 3rd place in the Nutraceutical Division poster competition and Jingjing Chen won the best Graduate Paper Award from North American Jiangnan University Alumni & Friends Association. Upasana Hariram was a finalist in the Food Micro Division and Jingjing Chen was a finalist in the Nutraceutical Division competitions.

Chenoweth Renovations Continue



This summer 3 labs are being renovated on the first and third floors. This fall 4 labs will be renovated on the 4th floor and the final lab in the Health and Wellness center will be completed. This gives us a total of 5 new labs and 12 renovated labs. Chenoweth's first and second floors are completely renovated, 5 of 7 labs on the 3rd floor and 4 of 10 labs on the fourth floor. This has all been critical because we now have 115 undergrads, 60 grads and 30 visiting scholars/post docs. Many thanks to all the Alumni whose generous donations to the **Fergus Clydesdale Health and Wellness Center** started the initial renovations of the building infrastructure that has allowed

all of these additional renovations.

Hang Xiao Receives Mary Swartz Rose Young Investigator Award by the American Society for Nutrition



Hang Xiao, Ph.D, was awarded the **Mary Swartz Rose Young Investigator Award** by the **American Society for Nutrition (ASN)** at the ASN Annual Meeting held in conjunction with **Experimental Biology 2013** in Boston MA April 20-24. The Mary Swartz Rose Young Investigator Award is given to an investigator for outstanding preclinical and/or clinical research on the safety and efficacy of dietary supplements as well as essential nutrients and other bioactive food components that may be distributed as supplements or functional food components. The award is jointly presented by ASN and the Council for Responsible Nutrition (CRN), the dietary supplement

industry's leading trade association, to recognize outstanding research on the safety and efficacy of bioactive compounds for human health.

Gorton's and International Food Network Named Top R&D Teams



Don Lynch, Vice President of R&D at Gorton's Seafood and **Peter Salmon**, President of International Food Network were recently recognized as having the top medium and small company R&D teams, respectively, by Food Processing Magazine. IFN was noted for their contributions to numerous commercial products including Ultra Slim-Fast, Haagen-Daz and Benecol. Gortons was noted for their success in making seafood more accessible to consumers. Congratulations to Don and Peter, you both have made UMass Food Science very proud.



Student Recognitions

Our students have had an exceptional year with recognition from numerous organizations. In addition, we gave over \$10,000 in Departmental Scholarships thanks to the tremendous support of Alumni.

UMass Food Science Alumni Scholarships:

Herbert Hultin Scholarship: Shintaro Pang, Mingyue Song, Ketinun Kittipongpittaya, Erica Mao

Jack Francis Scholarship: Cynthia L. Lopez-Pena, Eric Mao, Charnaine Koo

NEIFT Scholarships: Liz Sharp, Victoria Sbrogna, Jay Gilbert, Leann Barden, Bicheng Wu

IFT Scholarships: Ellen Florip, Jay Gilbert, Kayla Seto, Leann Barden, JiaJia Rao

American Oil Chemist: Fang Tian (Honored Student Award and Kalustian Estate Scholarship), Leann Barden: (Honored Student and Hans Kaunitz Award)

Dairy Ingredients Symposium: Dana Wong (First Place Student Research Poster Competition).

American Chemical Society: Luis Bastarrachea (Finalist, graduate student symposium) and Tom Noppawat Charoensinphon (Finalist, graduate student symposium).

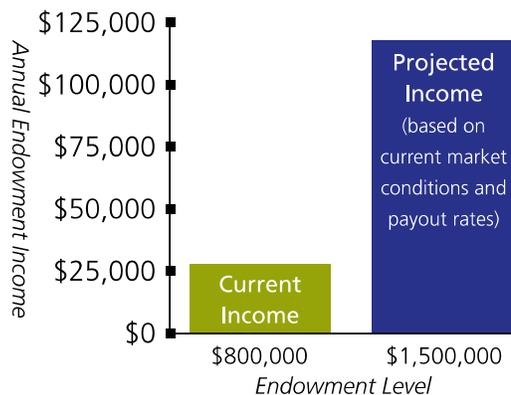
UMass Food Science Ice Cream Challenge



This year marked the first annual **UMass Food Science Ice Cream Challenge**. Students taking **Sam Nugen's** Food Science 563 split into four teams and set out to develop new concepts in ice cream. The teams were challenged to come up with novel concepts, perform focus groups and tastings and then formulate. Additionally, the students sourced ingredients from national suppliers and put together processing and HACCP plans. All four ice creams were required to stay under a specified price point which included ingredients and delivery. The ice cream concept from the winning team will be produced by Bart's Homemade and distributed throughout New England.

The contest took place on May 1st in the pilot plant. The judges included Gary and Barbara from Bart's Homemade as well as Dean Steve Goodwin. The winning flavor this year was "Berrily Basil", a bright and refreshing basil ice cream with bold, tart swirls of strawberry and blueberry. The product was developed by Katie von Zweck, Jordan Orwat, Haley Morin, and Tori Sbrogna. Second place went to "Monkey Business", an original ice cream flavor that could encapsulate a frozen chocolate banana engulfed in a thick creamy vanilla ice cream. This product was developed by a team of juniors including Keith Mondello, Amanda Walsh, John Bullman and Noah Lurie. Congratulations to all teams who competed. The department is very proud of your efforts.

Fergus Clydesdale Professorship Campaign Update



Our last newsletter announced the start of a new fundraising campaign to fully fund the **Fergus Clydesdale Professorship**. The existing fund was launched in 1999, when Dr. Clydesdale had just passed the half-way mark of his twenty-year tenure as head of the Department. The goal of the campaign is to enlarge the endowment to \$1.5 million so that the Professorship qualifies for the Provost's offer to annually match the earnings of the endowment. If we reach our \$1.5 million goal, this match will increase the income from the original fund over 4-fold and allow us to hire an additional faculty.

I am pleased to report that the response from Alumni has been amazing with the balance of gifts and pledges currently standing at \$1.39 million. This is just tremendous, but as we know from past campaigns, getting to our final goal gets tougher as time goes on. If anyone can help us close the final gap, please contact **Rick Robar** at 413-577-1692 or rrobar@cns.umass.edu.

Faculty News

Eric Decker led a session on sodium in processed foods at a conference sponsored by the American Heart Association and gave invited lectures at the IFT Wellness Conference, the 10th International Conference on Food Science & Technology at Jiangnan University in Wuxi, China and at Suranaree and Kasetsart Universities in Thailand. There are now over 20 PhDs from Thailand who received their degree from UMass Food Science. The below picture is from a Thailand Alumni dinner in Bangkok.



Fergus Clydesdale hosted David Freedman, a noted author, for discussions on an 18 page article David authored in the June issue of Atlantic monthly entitled "How Junk Food Can End Obesity".

Julie Goddard is a finalist for the 2013 American Chemical Society Agriculture and Food Chemistry Division Young Scientist Competition which will be held at the ACS September meeting. Julie also received a USDA NIFA Nano grant on Biocatalytic nanocomplexes for improved processing of high value-added products.

Amanda Kinchla presented at the World Science Festival for the "Cool Job's" program, an annual celebration and exploration of science that has been held in New York City since 2008. Amanda is also organizing conferences on HAACP, Better Process Control School and Food Emulsions (see last page for details).

Ron Labbe attended a European Symposium on Food Safety in Marseilles, France where he presented a talk on "Levels and toxin characteristics of bacterial spores in select U.S. retail foods".

Sam Nugen research group developed a rapid and low-cost milk quality sensor in collaboration with the Gates Foundation. Sam and his graduate student will be field testing the sensor in Kenya later this year. He has also just received a USDA grant for his work on magnetic nanoparticle/phage based separations.

Bob Levin is in the final stages of his new book on "The Plague: History, Clinical aspects, Immunology, Molecular Biology, and PCR Detection of *Yersinia pestis*, the Causative Agent".

Julian McClements received a Department of Defense equipment grant and has industry grants from Conagra and Pepsico. He also gave a talk at IFT on "Structured Biopolymer-based delivery systems for nutraceutical agents" and gave an invited lunch talk for the Food Carbohydrate Division.

Lynne McLandsborough presented a talk entitled "Survival, transfer and inactivation of Salmonella on plastic materials used in tomato harvest" at the 4th annual Center for Produce Safety Research Symposium and a talk entitled "Development of antimicrobial delivery systems for foods and biofilm removal" at a symposium at IFT.

Yeonhwa Park's research group presented 5 posters at the Experimental Biology meeting in Boston and gave a presentation at Food Research Institute 2013 at the University of Wisconsin-Madison.

Micha Peleg gave an invited plenary lecture entitled: "Mechanical Properties, Glass transition, and the Texture of Brittle Cellular Foods" at the Food Structure and Functionality Conference held in Stare Jablonki, Poland

Hang Xiao's group has presented their work during 2013 Experimental Biology Annual Meeting in Boston and 2013 IFT Annual Meeting in Chicago. Total of 2 oral presentations and 10 posters have been presented by the group during these meetings. In May, Dr. Xiao traveled to China where he delivered several invited talks in two international conferences and at four Universities.

Honoring the Food Science Advisory Board



Chancellor Subbaswamy and Advisory Board Chair Noel Anderson

UMass Food Science has had an Advisory Board since 1989. The Advisory Board has been instrumental in helping with curriculum development, internships, establishment of the Strategic Research Alliance, organization of Alumni events and fund raising. By itself, the Board has personally donated over \$2 MM to the Department since its establishment. This spring, the Department and new Chancellor Kumble R. Subbaswamy honored the Advisory Board for their many years of dedicated service with new plaque that was place outside of the main office in Chenoweth. Many thanks to this amazing group of dedicated individuals for helping UMass have the best Food Science program in the U.S.



UMass Food Science Department Upcoming Industry Short Courses:

Come back to UMass to learn more!

- Registration and additional information can be found at: www.umass.edu/foodsci, then click on "Upcoming Short Courses"
- All of the listed courses will be hosted at the Umass Campus Center
- Course Offerings Include:

Food Emulsion Short Course: November 5 & 6th, 2013



This workshop will present the basic principles, concepts and techniques of emulsion science, and show how this information can help to understand, predict and control the properties of real food products and ingredients. **Course topics will include:** · Fundamentals of Emulsions · Emulsion Formation · Emulsion Droplet Characteristics · Equipment Demonstrations · Emulsion stability · Emulsion Properties: Rheology, Appearance, Flavor · Emulsion-Based Delivery Systems: Multiple Emulsions, Multilayer Emulsions, Filled Hydrogel Particles · Surfactant-Based Delivery Systems: Micelles, Micro- Emulsions and Vesicles · Industry Application ·

HACCP: December 3-5, 2013



This workshop will provide the tools for you to complete the requirements for HACCP (Hazard Analysis Critical Control Point) certification, understand HACCP principles, identify the resources needed to develop, implement and maintain a HACCP plan, understand and identify process step hazard assessment and understand and identify steps required to determine critical control points.

Better Process Control School: January 7-10th, 2014



The Better Process Control School (BPCS) certifies supervisors of thermal processing systems, acidification, and container closure evaluation programs for low-acid and acidified canned foods. Each processor of low-acid or acidified foods must operate with a certified supervisor on hand at all times during processing. This program satisfies the training requirements specified in both the FDA and USDA regulations. Instructors for this school are drawn from the Food and Drug Administration (FDA), the University of Massachusetts, and industry.