Phi Tau Sigma Newsletter  July 2020

News:

Phi Tau Sigma Annual Meeting and Awards Ceremony
The Phi Tau Sigma Annual Meeting and Awards Ceremony will be presented via Zoom. Log-in/Call-in information is in the attachment distributed in the same email as this Newsletter. Please join us, and bring your colleagues, friends, and family.

Phi Tau Sigma Symposia during the IFT meeting
This year all scientific sessions will be pre-recorded and available on-demand.

Please be sure to watch the sessions sponsored or co-sponsored by Phi Tau Sigma:
• Advancements in novel processing and packaging technologies for shaping the future of food manufacturing and consumption
• What’s in a Name? The Rules and Regulations Surrounding Labeling Foods.
• Leveraging protein waste with novel products, processing and packaging solutions

Calendar:

-->July 12-15, 2020, Institute of Food Technologists Annual Meeting, Chicago, IL:
   NOTE: IFT will be having a ‘Virtual’ meeting. See details at https://www.iftevent.org/register/ift20updates

Meetings and Events:
July 9
• Phi Tau Sigma Executive Committee Meeting – Conference call
July 13 10:30am central time (log-in/call-in information sent with the Newsletter)
• Phi Tau Sigma Leadership Council Meeting and Annual Business Meeting
• Phi Tau Sigma Awards Ceremony

Dates and times to be determined:
• IFT Awards Celebration, includes the presentation of the Dr. Carl R. Fellers Award sponsored by Phi Tau Sigma

Sessions:
Available on-demand:
• Leveraging protein waste with novel products, processing and packaging solutions
• Advancements in novel processing and packaging technologies for shaping the future of food manufacturing and consumption
• What’s in a Name? The Rules and Regulations Surrounding Labeling Foods

-->Phi Tau Sigma Scholarship and Awards Schedule:
November 30: Deadline to submit nominations to the Awards Committee for the Dr. Daryl B. Lund International Scholarship.
February 1: Deadline to submit nominations to the Awards Committee for the Phi Tau Sigma Special Recognition Award, the Phi Tau Sigma Student Achievement Scholarship, the Dr. Gideon “Guy” Livingston Scholarship, and the Phi Tau Sigma Founders’ Scholarship.
April 1: Deadline to submit nominations to the Awards Committee for the Phi Tau Sigma Outstanding Chapter of the Year Award.

Send completed nomination forms to both Awards Committee Chair Ravi Chermala, M.S., Chair, (ravichermala@gmail.com) and Executive Director Kathryn L. Kotula, Ph.D. (klkotula@msn.com). (More information: http://www.phitausigma.org/awards/)

-->December 9: Deadline to submit Nominations for the Dr. Carl R. Fellers Award, and other IFT Achievement Awards.
(More information: https://www.ift.org/community/awards-and-recognition/achievement-awards)

-->Phi Tau Sigma Chapter Schedule:
November 1: Deadline to order Honor Cords and lapel pins to ensure delivery before Fall graduation dates
March 15: Deadline for membership nominations to ensure decisions from the Membership and Qualifications Committee before the Annual Meeting
April 1: Deadline to order Honor Cords and lapel pins to ensure delivery before Spring graduation dates
May 1: First call for Chapter annual reports
June 1: Second call for Chapter annual reports
July 1: Final call for Chapter annual reports
August 1: Deadline for Chapter annual reports

Reminder to all Chapters: In order to receive the Certificate of Merit or Certificate of Excellence, Chapters must submit their annual reports for evaluation by August 1. Please send your annual report to the current Chair of the Chapter Affairs Committee, Claire Koelsch Sand, Ph.D., Chair, (clairekoelschsand@gmail.com) with a copy to Dr. Kathryn L. Kotula (klkotula@msn.com).

-->Electoral schedule:
December 15: Nominations due to Nomination and Election Committee (Tom Aurand, Ph.D., Chair, tom.aurand@gmail.com)
January 2: Nominations and Elections Committee convenes
January 21: Deadline for Nomination and Elections Committee to submit slate of candidates to President
February 5: Last date on which nominations by petition may be submitted
March 2: List of candidates will be emailed to the Members for balloting
March 30: Deadline for casting ballots
April 8: Deadline for tabulation of ballots
May: Newly elected individuals announced to the Membership in the May Phi Tau Sigma Newsletter

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Student Research Synopsis: Development of a Continuous Pasteurization System with Improved Heating Uniformity for Milk Powder Using Radio Frequency Heating

(Contributed by Damla Dag, Ph.D. Student under the direction of Dr. Fanbin Kong and Dr. Rakesh K. Singh, Department of Food Science and Technology, University of Georgia, Athens)


Introduction: Milk powder is a good nutritional resource of essential minerals including calcium, magnesium, zinc, potassium and vitamins such as A, D, E and K. It is widely used as a substitute for fresh milk and an ingredient in a variety of food products such as ice-cream, cultured milk, yogurts, chocolate, confectionery, bakery products, soups, and sauces. In milk powder production, the pasteurized milk is rapidly dried using spray dryer. It was assumed that the pasteurization and spray drying of the milk could achieve the desired decontamination level for the milk powder. However, the contamination of milk powder might occur due to cross-contamination of the pasteurized milk and the milk powder from environmental sources (Michael et al., 2014).

According to the Centers for Disease Control and Prevention (CDC), an outbreak associated with milk powder due to Staphylococcus aureus was reported in 2006 in Michigan, USA with 36 infections. Moreover, from 1985 to 2005 more than 6 outbreaks of Salmonella infections have been associated with the consumption of infant formula powder. The main reason for the outbreaks was found due to the contamination of the milk powder in the spray driers (Angulo, Cahill, Wachsmuth, Costarrica, & Embarek, 2008). The history of outbreaks points out that a further pasteurization step after spray drying for milk powder could be included in the milk powder production.

Hot air and/or steam heating are the most commonly used pasteurization techniques in the food industry. In conventional heating, heat is transferred from the hot air/steam to the outside surface of the food and then heat is transferred to the inside of the food. The conventional heating is time and energy-consuming and the airflow may not be uniformly distributed in the milk powder. In this regard, radio frequency (RF) heating is a promising alternative technology for milk powder pasteurization with volumetric, rapid, deep penetration and uniform heating compared to conventional heating.

Purpose: Despite the effectiveness of this method, non-uniform temperature distribution in food is still a major concern of RF heating caused by the heterogeneity of food compositions and the ununiformed distribution of the electric field. In this study, to overcome the non-uniform heating limitation of the RF heating, food and process parameters of a batch system were evaluated to inform the design and validation of a continuous milk powder pasteurization system.
**Methods:** The dielectric properties of the whole, nonfat milk powder and their mixture were measured using LCR meter (Inductance, Capacitance and Resistance) and used in the electric field strength and penetration depth calculations. The whole and nonfat milk powder in rectangular and cylindrical containers with the same volume but different heights (i.e., 3, 6 and 9 cm) were heated in a batch 27.12 MHz, 6 kW RF oven (shown in Fig 1.). The effect of the geometry and dimension on the heating uniformity of RF heating system was investigated by the heating rate (°C/min), heating profile during RF heating using a fiber optic temperature sensor, and surface thermal images taken by an infrared thermal camera having an accuracy of ±2 °C. Moreover, an electric field strength and penetration depth were calculated by the governing equations for both batch and continuous RF systems. The quality parameters of milk powders were evaluated by water activity, moisture content, protein solubility and color measurements and compared with the controls which were the milk powders before RF heating.

![Figure 1](image.png)

**Figure 1.** Schematic of free-running oscillator 6 kW, 27.12 MHz radio frequency oven and its components.

**Results:** A linear increase in the temperature of whole and nonfat milk powders with time was observed when heated in both rectangular and cylindrical containers with different heights. The heating rates from the temperature profile were calculated as 4.85, 4.30, 8.74, 9.04, 12.65, 12.23 °C/min for whole milk powder, 7.63, 7.38, 12.76, 12.97, 16.51, 16.83 °C/min for non-fat milk powder when heated in box 1, 2, 3, 4, 5 and 6, respectively where box 1, 3 and 5 are containers in a rectangular shape and 2, 4, 6 are containers in cylindrical shape with 3, 6 and 9 cm height, respectively. The reason for different heating rates for the different containers can be explained due to the air gap between the milk powder and top electrode. The milk powder in the taller box has a smaller air gap between the sample and the top electrode, therefore; the electric field intensity and energy intensity are higher based on electric field distribution theory (Li et al., 2018). An increase in the fat content in the milk powder caused a decrease in heating rate which can be due to the difference in water activity, electrical conductivity and dielectric properties of whole and nonfat milk powders. The electric field strength during heating decreased for both whole and nonfat milk powders. Moreover, the electric field strength increased with an increase in container height. The penetration depth of the nonfat milk powder was greater than the whole milk powder. A small decrease in the moisture content of RF heated milk powder which could be due to the moisture migration during heating was observed. The solubility of whole milk powder increased while the solubility of the nonfat milk powder decreased after RF heating.
Our preliminary results also indicated that RF heating uniformity of a food powder was improved by conveying the sample during heating. Continuous RF heating system showed a higher heating rate (6.09 °C/min) compared to the batch RF heating system (5.35 °C/min) with similar heating uniformity index which are 0.10 and 0.11 for continuous and batch heating system, respectively.

**Significance:** The data obtained from the current study are useful for future scale-up of the system for commercial application of RF heating for low moisture food in addition to the milk powder pasteurization. As a final step, both batch and continuous systems will be validated via microbiological analysis. Upon the completion of this research project, we will gain an understanding of the variables affecting the RF pasteurization uniformity and efficiency. This study will allow us to develop an innovative RF pasteurization system for low moisture foods in which the equipment design and process parameters can be optimized to obtain the best results.

**References:**


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**Lifetime Member Tribute: Rafael Jimenez-Flores, Ph.D.**

Professor, Ohio State University

**Why did you become a Lifetime Member?**

I was impressed by the members’ enthusiasm at the Ohio State University. When students and faculty speak about Phi Tau Sigma, they do it with pride. As an Endowed Chair at OSU, I thought that Lifetime membership should be a bit of ‘lead by example’ for other faculty.

**Education:**

I started my B.S. in Mexico City at the La Salle University majoring in Pharmaceutical Chemistry and Biology applied to Food Science (was second choice after I started as a Chemical Engineer).

I earned my M.S. at Cornell University where I defined my interest and devotion to Dairy Science working with Professor Frank Kosikowski.

I earned my Ph.D. at UC Davis, this time focused on applications of molecular biology to milk proteins working under the guidance of Professor Tom Richardson.
Experience/Accomplishments:
Perhaps my most cherished accomplishment is that I have advised 58 graduate students in my group of research though the years (started in 1990). At OSU I have had 5 graduated already and am advising another 7. I am, or have been, in the research committee of another 18 students.

I have published 135 peer reviewed papers (h index 25) of which I am proud, because for 23 years I worked at Cal Poly where we focused mostly on undergraduate education and the maximum degree was M.S. However, many of my advisees were Ph.D. students that wanted to do research in my group.

I have served my association for over 30 years, the American Dairy Science Association, and I am the President of ADSA this year.

I have 6 patents and at OSU I have applied for 3 more.

Areas of Expertise:
Dairy Science, milk protein chemistry and biochemistry, milk lipids biochemistry, dairy processing, membrane processing (Ultrafiltration, Microfiltration and RO), study of Milk Fat Globule Membrane (MFGM). This last area was inspired in great part by the work of Dr. Mike Mangino, retired but long time professor at OSU.

Awards and Honors (selected list):
**NACTA Educator Award.** Awarded by the North America Colleges and Teachers in Agriculture. June 2019.
**Installed President of the American Dairy Science Association.** Cincinnati, OH. June 2019
**Professor of the Year.** Award by the FST students Club at Ohio State University 2018.
**Elected Vice President of the American Dairy Science Association.** 2018.
**Director.** Cal Poly Center for Applications in Biotechnology. 2014-2016
**Associate Editor** of the Dairy Foods Section of the Journal of Dairy Science 200-2008.
**Elected Member to the Board of Directors.** American Dairy Science Association 2012-2015.
**Distinguished Scholarship Award 2010.** California Polytechnic State University.
**Outstanding Research Award 2009-2010.** College of Agriculture, Food and Environmental Sciences. California Polytechnic State University
**International Dairy Foods Association (IDFA) Research Award in Dairy Foods Science. 2009,** by the American Dairy Science Association

Personal: Family, Interests, Hobbies:
Wife, Dr. Lola Berber-Jimenez, PhD in Chemistry from UC Davis, current Head of Department of Liberal Studies at Cal Poly
Daughter, Dr. Sofia Jimenez, PhD in Cognitive Science, Vanderbilt University
Son, Tomas Jimenez, student of Geisel School of Medicine, Dartmouth

I enjoy tennis, RPAC gym and read detective novels in English and Spanish

Advice to university students and career food scientists and technologists:
While in school, fill your knowledge ‘bag’ with as many tools as you can because you never know the job you will have and what will be useful, but specialize in what you really like.
Pick your projects, especially the research ones and make them ‘your baby’.
Chapter News: University of Minnesota Chapter
(Contributed by Yara Benavides – Ph.D. Candidate, Outgoing president of the University of Minnesota Chapter of Phi Tau Sigma)

Even though we are in unprecedented times, the University of Minnesota Chapter of Phi Tau Sigma was able to hold their Induction Ceremony remotely on June 4, 2020 and recognize the student members who have most recently been inducted into Phi Tau Sigma from the University of Minnesota Chapter.

This event was attended by Phi Tau Sigma members, and officers, from the University of Minnesota; and South Dakota State University and North Dakota State University, universities which our Chapter has a cooperative relationship.

We had a very special guest: Goldy Gopher (mascot for the University of Minnesota)! Goldy was responsible for granting virtually the certificates, pins and cords.

Pictured first row: Dr. Mary Schmidl, Sonali Raghunath, Radhika Bharathi, Yara Benavides
Second row: Maryam Enteshwari, Dr. George Annor, Dr. Kumar Mallikarjunan, Vaidehi Narkar
Third row: Akua Okyere, Dr. Gary Reineccius, Dr. Srinivas Janaswamy, Dr. Kasiviswanathan Muthukumararappan
Fourth row: Minwei Xu
Member News:

Congratulations to these ΦΤΣ Members on their selection to the 2020 Class of IFT Fellows!

Jonathan C. Allen, Ph.D., ΦΤΣ LTM
Professor, Department of Food, Bioprocessing and Nutrition Science
North Carolina State University

Jonathan Allen is a professor in the Department of Food, Bioprocessing, and Nutrition Science at North Carolina State University and director of the food science graduate program. He teaches undergraduate and graduate courses in milk and dairy products, lactation, exercise nutrition, and energy metabolism. His research projects cover glycemic control as impacted by food processing and bioactive components in foods such as sweet potato, peanuts, and milk; nutrient fortification of flour; and processing strategies. Allen has gained an international reputation for the understanding and potential amelioration of infant growth retardation, metabolic bone disease, diabetes, and hypertension. He has trained individuals who now work in the food industry, government, academia, and nongovernmental organizations in more than a dozen countries. Allen was chair of IFT’s Dairy Foods Division, leads technical research paper reviews and graduate student competitions for IFT, and is on the Dietary Guidelines for Americans Task Force.

Robert Brackett, Ph.D., ΦΤΣ LTM
Director, Institute for Food Safety and Health
Vice President, Illinois Institute of Technology

Robert E. Brackett is vice president of the Illinois Institute of Technology (IIT) and director of the Institute for Food Safety and Health (IFSH). In these capacities, he serves on the IIT leadership team and directs scientific and educational programs at IFSH. Brackett has almost 40 years of experience in food safety research, training, and policy. His accomplishments include 18 book chapters, more than 100 articles in peer-reviewed scientific publications, and more than 300 oral presentations. Brackett received his PhD in food science from the University of Wisconsin–Madison. Prior to working for IIT, Brackett was chief science and regulatory officer for the Grocery Manufacturers Association, which is now the Consumer Brands Association (CBA). Before joining the CBA, he was the director of the U.S. Food and Drug Administration’s Center for Food Safety and Applied Nutrition. Brackett has also held academic positions with North Carolina State University and the University of Georgia.
Rolando A. Flores, Ph.D., ΦΣ Member in Good Standing
Dean and Chief Administrative Officer, College of Agricultural, Consumer, and Environmental Sciences, New Mexico State University

Rolando A. Flores is the dean and chief administrative officer of the College of Agricultural, Consumer and Environmental Sciences at New Mexico State University (NMSU). He is an active member of IFT, a Water for Food Daugherty Global Institute Faculty Global Fellow, and member of the Cereals & Grains Association (prior AACC) and the American Society of Agricultural and Biological Engineers. Prior to working for NMSU, Flores was professor and head of the Department of Food Science and Technology at University of Nebraska–Lincoln and director of the university’s food processing center. His research is focused on value-added agricultural products and by-products, simulation and optimization of processing systems, and water reconditioning and reuse in food processing. Flores earned a PhD in grain science and industry from Kansas State University, an MS in agricultural engineering from Iowa State University, and a BS in mechanical engineering from the Universidad de Costa Rica.

P. Kumar Mallikarjunan, Ph.D., ΦΣ LTM
Professor, Department of Food Science and Nutrition
University of Minnesota

Kumar Mallikarjunan is a food engineer, a researcher, and an educator. For more than 25 years, he has contributed significantly to the field of food science and technology through his research on frying technology, microwave-assisted extraction of phytochemicals, and development of rapid methods to characterize food products via electronic nose and infrared spectroscopy. He helped lead multi-institutional research on aflatoxin mitigation and management in the peanut value chain in sub-Saharan Africa. His research has produced more than 250 publications, including referred articles, books, and book chapters. He is actively engaged in IFT, providing leadership at the section and national levels and currently serves as president of the Minnesota Section of IFT. His professional accomplishments have been recognized by several awards, including the Outstanding Alumni for Research Excellence from the Asian Institute of Technology, the Kishida International Award from the American Society of Agricultural and Biological Engineers, and the Bor S. Luh International Award from IFT.
Carmen I. Moraru, Ph.D., ΦΣ Member in Good Standing
Professor and Department Chair, Department of Food Science
Cornell University

Carmen I. Moraru is a professor of food processing and chair of the Department of Food Science at Cornell University. She received both her BS and PhD in food engineering from the University of Galati, Romania. After working in the dairy industry and then in academia in Romania for 10 years, Moraru joined Rutgers University in 1999 as a postdoctoral associate and then research assistant professor. She became a faculty member at Cornell University in 2003. Moraru’s teaching and research program at Cornell focuses on using engineering principles and novel processing methods to improve food quality and safety. She has authored numerous peer-reviewed papers, book chapters, and research abstracts and is often invited to speak at professional meetings around the globe. Moraru has served IFT in various capacities, including chair and secretary of the Nonthermal Processing Division and as a member of various work groups and task forces. She has won two teaching awards from Cornell University as well as the International Dairy Foods Association (IDFA) Award in Dairy Foods Research, and the IDFA Teaching Award in Dairy Manufacturing. In 2019, she received an honorary doctorate degree from the University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania.

Zhongli Pan, Ph.D., ΦΣ Member in Good Standing
Adjunct Professor, Department of Biological and Agricultural Engineering
University of California–Davis

Zhongli Pan is an internationally recognized and accomplished leader, food engineer, and scholar in the field of food and agricultural processing engineering. He has performed extensive outreach, teaching, technology transfer, and commercialization across government, academia, and industry. He leads and conducts innovative and impactful scientific research and development on new processing technologies, which have been successfully applied in the food industry and contributed significantly toward global advancement of engineering solutions to food and agricultural problems. Pan received a number of prestigious awards, including the Presidential Early Career Award for Scientists and Engineers, the Award for Outstanding Commercialization Success from the Federal Laboratory Consortium, and IFT’s Research and Development Award. He is also a Fellow of the American Society of Agricultural and Biological Engineers. He has served on the Annual Meeting Scientific Program Advisory Panel and on various IFT committees.
Melvin A. Pascall, Ph.D., ΦΣ Member in Good Standing
Professor, Department of Food Science and Technology
The Ohio State University

Melvin Pascall began his career in the food packaging industry in 1973 in Trinidad. After 15 years, he obtained an MS degree in food science and environmental toxicology and a PhD in packaging science from Michigan State University. After a six-year stint at the U.S. Food and Drug Administration (FDA) in Chicago and Washington D.C., Pascall joined the faculty at The Ohio State University in 2002. He currently teaches and conducts research in food packaging, safety, regulations, and product shelf life. The food industry, academia, and regulatory agencies know Pascall as an expert in food packaging. He has published one book, nine book chapters, and 60 peer-reviewed articles. His research has influenced changes to the FDA Food Code and has sparked a revolution in packaging leak detection. He has trained and mentored numerous students and regulatory personnel who now have notable careers in food safety and food packaging.

Ronald Pegg, Ph.D., ΦΣ LTM
Josiah Meigs Distinguished Teaching Professor, Department of Food Science and Technology
University of Georgia

Ronald Pegg is a Josiah Meigs distinguished teaching professor in the Department of Food Science and Technology at the University of Georgia. He has been studying various aspects of foods for health. Principally, he has been investigating the nutrients and bioactive compounds of U.S. commodities. His research has mainly centered on isolating and characterizing phenolic constituents by gas chromatography and high-performance liquid chromatography techniques and then examining their antioxidant, anti-inflammatory, and anti-glycation activities using in vitro assays, cell culture studies, and animal models. His antioxidant research is leading to a better understanding of the multifaceted role of phenolics at ameliorating deleterious responses in biological systems. Pegg is a frequent speaker at international, national, and regional scientific meetings, and his many activities encompass memberships in a number of professional societies. He is the author of 175 peer-reviewed research papers and book chapters and has delivered more than 260 presentations.
Kantha Shelke, Ph.D., CFS ΦΤΣ LTM
Principal
Corvus Blue LLC

Kantha Shelke is a principal at Corvus Blue LLC, a food science and research firm that specializes in expediting new product and technology development in food and nutrition and helping create market demand with competitive intelligence and rapid commercialization. She practices and teaches food science and safety regulations in global food, ingredient, and supplement supply chains. An IFT food science communicator, Shelke has written for Food Technology and other industry magazines (PLMA Live!, Prepared Foods) and teaches food safety regulations at Johns Hopkins University. She also serves as a member of the Faculty Advisory Board of Food and Agriculture at McGill University and a member of the Faculty Advisory Board at Southwest College of Naturopathic Medicine. When not teaching or working with clients, she travels around the world, helping advance the understanding of food and nutrition, food safety, and regulations with science and sensibility.

Hang Xiao, Ph.D., ΦΤΣ LTM
Professor, Department of Food Science
University of Massachusetts – Amherst

Hang Xiao is a professor of food science at the University of Massachusetts–Amherst. He is an expert on the health-promoting effects and molecular mechanisms of food and food components. His long-term research goal is to develop food-based strategies for the prevention of major chronic diseases in humans. Xiao has received numerous national and international awards for his pioneering research work.
More Member News:

**Dr. Rakesh Singh, Ph.D., LTM, Past President of Phi Tau Sigma** has been elected as **2020 Fellow of National Academy of Agricultural Sciences (NAAS) of India**; and **2020 Fellow of International Academy of Food Science and Technology (IAFoST)**.

The fellow election in NAAS is based on the outstanding achievements and sustained significant contributions to agricultural sciences in different subject matter areas. Total 34 fellows are elected each year in the following areas: Crop Sciences, Horticulture, Animal Sciences, Fisheries, Plant Protection, Agricultural Engineering and Technology, and Social Sciences. Dr. Singh was elected in the Agricultural Engineering and Technology area as a Pravasi Fellow (scientists from Indian origin settled in a foreign country), which has only 3 spots in all the areas previously mentioned. Similarly, the IAFoST Fellows are elected for their distinguished accomplishments and important contributions during their career. The IAFoST Fellows Induction Ceremony originally scheduled during the 20th World Congress of Food Science and Technology, Auckland, New Zealand, will be a virtual induction this August as the Congress has had to be postponed. The IAFoST and IUFoST leadership team will work on details on the formal presentation of the IAFoST certificate and Fellows pin.

Dr. Singh is Professor and Head in the Department of Food Science and Technology at the University of Georgia. He is internationally recognized for his innovative research in food process engineering and technology, which includes: aseptic processing, drying, microwave and radiofrequency heating, infrared heating, bioseparations and engineering properties of foods. His innovative research ideas, organizational ability, leadership, and expertise in food processing have stimulated new research projects, and benefited food industry and the scientific community around the world. He has published 163 refereed papers, 33 book chapters, 4 books, 1 patent and abstracts. His publications have been highly cited by other researchers as evident by his h-index of 48, and is in the Scopus’ top 100,000 most cited ranking among 7 million researchers in the world. He has given invited lectures in China, India, Brazil, Mexico, S. Korea, Honduras and Egypt, and been Visiting Professor in Mexico and China. He has received several honors and awards including the Fellow of Institute of Food Technologists (2008) and the prestigious Elizabeth Fleming Stier award (2009). He is Editor-in-Chief of *LWT-Food Science & Technology*, and serves on the editorial boards of *International Journal of Food Properties*, and *Tropical Agricultural Research (TAR)* journal of Sri Lanka.

**Full list of Phi Tau Sigma Members Inducted as IAFoST Fellows:**

- Sheryl Barringer, Ph.D., Phi Tau Sigma Lifetime Member
- Navam Hettiarchchy, Ph.D., Phi Tau Sigma Lifetime Member
- Ken Lee, Ph.D., Phi Tau Sigma Lifetime Member
- Rakesh Singh, Ph.D., Phi Tau Sigma Lifetime Member
- Kenneth Swartzel, Ph.D., Phi Tau Sigma Lifetime Member

*Congratulations all!*
In Memoriam: Dr. Lothar (Felix) Leistner
(Contributed by Kathryn L. Kotula, Ph.D.)

Recently, I received the following card from Kai-Min Leistner:

Von guten Mächten wunderbar geborgen
(Dietrich Bonhoeffer)

Nach einem langen und erfüllten Leben entschlief mein geliebter Ehemann, unser Vater, Schwiegervater und Großvater

Dr. Lothar (Felix) Leistner
*23. 7. 1927 † 18.4.2020

Ehem. Direktor und Professor der Bundesanstalt für Fleischforschung Kulmbach

In stiller Trauer gedenken ihm:
Kai Min Leistner
Rumo Leistner mit Christiane, Viktoria und Nike
Rulan Häussler mit Christian, Marina mit Jan, Lejo mit Franzi
Rupert Leistner mit Sabine und Levin

Aus gegebenem Anlass fand die Bestattung im engsten Familienkreis in Bamberg statt. Traueradresse: Dr. Rumo Leistner, St.-getreu-Straße 32 d, 96049 Bamberg.
This translates to:

Wonderfully salvaged by good powers  
(Dietrich Bonhoeffer)

After a long and fulfilling life, my beloved husband, father, father-in-law and grandfather slept

Dr. Lothar (Felix) Leistner  
*23. 7. 1927 † 18.4.2020

Former Director and Professor of the Federal Institute for Meat Research Kulmbach

In silent mourning, he remembers:  
Kai Min Leistner  
Rumo Leistner with Christiane, Viktoria and Nike  
Rulan Häussler with Christian, Marina with Jan, Lejo with Franzi  
Rupert Leistner with Sabine and Levin

On occasion, the funeral took place in the closest family circle in Bamberg.  
Address of mourning: Dr. Rumo Leistner, St.-getreu-Straße 32 d, 96049 Bamberg.

For those of you who did not know Dr. Leistner – actually you do know him, or at least part of his work. He is best known as the originator of the Hurdle Concept. In the mid 1970’s Dr. Leistner described the concept that foods could be effectively preserved with less harsh preservation techniques by combining various methods, thus obtaining a cumulative effect. This combination of gentler preservation methods maintains greater palatability of the food product, while inhibiting or inactivating pathogens. He named this concept the Hurdle Concept or Hurdle Effect in reference to hurdles in track where the runner must jump over hurdles (obstacles that look like fences) while running. This is much more grueling than just running.

**Short Biography:**

Dr. Lothar (Felix) Leistner, a Member of Phi Tau Sigma since 2011, studied veterinary medicine at the university of Leipzig and Berlin, and received his DVM in 1954 at the Free University of Berlin. From 1954–1959 he worked as research microbiologist in the Federal Centre for Meat Research at Kulmbach, Germany. Subsequently he worked as a Fulbright scholar for seven years abroad as a visiting scientist in well-known research institutes and universities: American Meat Institute Foundation in Chicago, USA (1959-1961); Institut Pasteur de Lille, France (1961-1962): EURATOM: Centre d’Etudes Nucléaires at Fontenay-aux-Roses, France (1962-1963); Iowa State University in Ames, Iowa, USA (1963-1966).

After these years of learning, he returned to Germany and was then appointed director and professor of the Institute for Microbiology, Toxicology and Histology of the Federal Centre for Meat Research at Kulmbach. Intermittently, he served for 8 years as vice-chairman and for another 6 years as chairman of the entire Centre for Meat Research, which was supported by the German Ministry of Food, Agriculture and Forestry. After about 30 years of service to meat science in Germany, he retired in 1992.
Dr. Leistner is author or co-author of more than 1200 publications, including 75 chapters of books. He was a member of the advisory or editorial boards for 3 scientific journals: Die Fleishwirtschaft (Germany), Systematic and Applied Microbiology (Germany), Journal of Applied Bacteriology (U.K.). In addition, he served for about 20 years on the advisory board of the Medical Corps of the German Army, and of the Federal Health Office in Berlin. He is the “father” of the school for Meat Technologists in Kulmbach and taught there for 30 years. Furthermore, he has contributed to several research projects of the NATO and the European Union. After his retirement, he was invited to about 50 different countries world-wide, to many of them several times, for lectures and consultancies. His fields of specialization are food microbiology (spoilage and food poisoning microorganisms as well as starter and protective cultures), food toxicology (mycotoxins), and food preservation (biotechnology, hurdle technology). In the last decades he concentrated on the principles and applications of hurdle technology, an innovative concept of food preservation he has created and which is now increasingly employed in industrialized as well as developing countries. In 2002 the first comprehensive book on hurdle technologies, written by Lothar Leistner and Grahame Gould (U.K.), was published by Kluwer Academic/Plenum Publishers, New York, USA.

In 1991, Dr. Leistner was elected to be a member of the Academy of Agricultural Sciences of the Soviet Union (the membership has been transferred to the Academy of Agricultural Science of Russia). In the same year, he was asked to act as permanent consultant to the Chinese Meat Research Centre at Beijing, P.R. of China. In 1992 he received the prestigious International Award of the American Meat Science Association (AMSA) (photo on right from the Reciprocal Meat Conference Proceedings), and in 1993 he was awarded the medal (Rievel-Medaille) of the Federal Centre of Meat Research (BAFF) of Germany. By the International Biographical Centre (IBC), Cambridge, England, he was included in 1999 into the list of 2000 Outstanding Intellectuals of the 20th Century, and in 2005 he received from the American Biographical Institute the Lifetime Achievement Award for “Excellence in Science”, in recognition of his services to food science.

Felix Leistner was happily married since 1961 to a Chinese/American wife. They have two sons, one daughter, four lovely granddaughters, and one cute grandson. [From the biography of Dr. Lothar (Felix) Leistner, October 2011]

**Dues Reminder:**

Your dues status is listed in the cover email of this Newsletter. If you have not already paid your dues, Phi Tau Sigma Member dues are $40 per year, but students get a discount so their dues are $20 per year. Lifetime Membership is $400 (just once). Please access the Phi Tau Sigma Membership Dues Page at: [http://www.phitasigma.org/membership-dues/](http://www.phitasigma.org/membership-dues/). Proceed on to pay by PayPal. Once you are successful with your PayPal payment, you will receive a receipt. If you do not receive a receipt, please try again.

Dues can also be paid by check payable to **Phi Tau Sigma**, (made with U.S. Funds and drawn on a U.S. Bank). (Do not send a money order.) Do **not** write the check to Kantha. Mail your check to: **Kantha Shelke, Ph.D.** (Do **not** address to Phi Tau Sigma.)
You are welcome at any time to give a donation to the Dr. Carl R. Fellers Award Fund, the Dr. Gideon “Guy” Livingston Scholarship Fund, Phi Tau Sigma Student Achievement Awards Fund, Phi Tau Sigma Special Recognition Award Fund, Dr. Daryl B. Lund International Scholarship Fund, Phi Tau Sigma Founders’ Scholarship, Phi Tau Sigma Chapter of the Year Award, the Program Fund, or the General Fund. http://www.phitausigma.org/donate/

We also ask each Chapter to send a list of their current, and lapsed, members along with contact information to the Chapter Affairs Committee Chair, Claire Koelsch Sand, Ph.D. at: clairekoelschsand@gmail.com, to help ensure our records are accurate.

Phi Tau Sigma Store:

Phi Tau Sigma has an online store. Items featured include Honor Cords, Official Lapel Pins, Banners (podium and wall/table), Annual and Lifetime Member dues, printed Certificates of Membership, and an opportunity to make tax deductible donations to Phi Tau Sigma. The Society Store can be found by going to www.phitausigma.org/store.

Support Phi Tau Sigma through AmazonSmile:

If you shop at Amazon, please register Phi Tau Sigma as your charity through AmazonSmile. The AmazonSmile Foundation will then donate 0.5% of the purchase price of eligible products to Phi Tau Sigma. This may not sound like a lot, but it adds up. Be sure to enter Amazon through AmazonSmile every time you shop (https://smile.amazon.com/). Thank you!

Editorial: Networking

Numerous summer conferences and meetings will be held in a ‘virtual’ setting this year. The one thing that will be missing is face-to-face networking. This, for me, has always been the most important aspect of attending meetings. The best contacts I have made over the years have been through networking (face-to-face, but also email and phone).

Therefore, if you would like to ‘meet’ a new Phi Tau Sigma member, please contact me with your request (klkotula@msn.com, put Phi Tau Sigma Networking in the subject line) and I will put you in contact with someone else. Granted, this will also have to be ‘virtual’ – email or phone - but it is a start. These contacts can last a lifetime.

About Phi Tau Sigma Communications:

The Phi Tau Sigma Newsletter Committee includes: Kathryn Kotula, Ph.D., Editor-in-Chief, Chair (klkotula@msn.com), Claire Zoellner, Ph.D., Associate Editor (cez23@cornell.edu), Anthony W. Kotula, Ph.D., Hossein Daryael, Ph.D., Tianxi Yang, Ph.D., Yiren Yue, Ph.D., Laura Stawn, Ph.D., Diane Schmitt, Ph.D., Gabriela John Swamy, Ph.D., and Jennifer
Fideler, Ph.D. candidate. Please be responsive to their inquiries for information for the Newsletter.

The Newsletter Committee particularly wishes to share news from Phi Tau Sigma Members and Chapters. Any items for the monthly Phi Tau Sigma Newsletter should be emailed in Word to Editor Kathryn L. Kotula, Ph.D. at kikotula@msn.com or Associate Newsletter Editor Claire Zoellner, Ph.D. at cez23@cornell.edu. Write “Phi Tau Sigma Newsletter” in the subject line. Please provide the information by the 1st of the month. Thanks.

Documents:

Phi Tau Sigma Documents can be found on our website at: www.phitausigma.org.

Phi Tau Sigma Membership Nominations
http://www.phitausigma.org/membership-nomination-2020-doc/

Phi Tau Sigma Scholarships and Awards Forms
http://www.phitausigma.org/awards/

Phi Tau Sigma Constitution and By-Laws
http://www.phitausigma.org/constitution/
http://www.phitausigma.org/bylaws/

Phi Tau Sigma Mentorship Program
http://www.phitausigma.org/mentorship/

Every Member Get A Member Campaign
http://www.phitausigma.org/growing/

Why I Contribute to Phi Tau Sigma:

Phi Tau Sigma’s commitment to advancing the science that will feed future generations aligns perfectly with Elsevier’s mission statement – “Lead the way in advancing science, technology and health.” Phi Tau Sigma members represent the highest level of science and technology research and application, and by supporting not only established scientists, but providing mentoring and leadership to the next generation, the group works to ensure a food secure world for the future. We donate to support Phi Tau Sigma efforts to reach that goal.”

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Donors, Sponsors, and Contributing Partners:

Phi Tau Sigma accepts donations and has a variety of available sponsorship opportunities.

Phi Tau Sigma is a non-profit 501(c)(3) charitable organization, so your contributions are tax deductible to the extent provided by U.S. law.

Donations and sponsorships may come from, but are not limited to, Corporations, Companies, Universities, Government agencies, Associations, Consultants, and individuals.

Contributions are appreciated in any amount, and can be made by way of the Phi Tau Sigma website (http://www.phitausigma.org/sponsor/). Donations by check can be made by contacting: Treasurer Kantha Shelke, Ph.D. (kantha@corvusblue.net), 33 West Ontario, Suite 57F, Chicago, IL 60654. Please write “Donation” or “Sponsorship” in the subject line. Contributions of $500 or more will be recognized publicly by the Society at the annual meeting, on the Phi Tau Sigma website, in printed material associated with relevant programs and events, and in the monthly Phi Tau Sigma Newsletter. Sponsorships of awards and scholarships are also available at levels of contribution sufficient to cover the associated cost of the award or scholarship. Endowments are also accepted.

Sponsorship opportunities are available for the Phi Tau Sigma Annual Recognition Event, Phi Tau Sigma Special Recognition Award, Phi Tau Sigma Student Achievement Award (up to 3 will be awarded), the Dr. Gideon “Guy” Livingston Scholarship Fund, the Phi Tau Sigma Founders’ Scholarship, the Dr. Daryl B. Lund International Scholarship Fund, and the Phi Tau Sigma Outstanding Chapter of the Year Award. Donations can be made towards the awards and scholarships listed above, as well as the Program fund and the General fund. There are also endowment opportunities for student scholarships named for the sponsoring company.

Phi Tau Sigma has a Contributing Partners Program with five levels of sponsorships as described below. The Contributing Partner receives all of the benefits in the previous levels, plus the addition of the benefit listed for that level.

**Bronze** ($5,000)
- Company listing in the “Donors and Sponsors” section of the Phi Tau Sigma Newsletter.
- Recognition with company name on www.PhiTauSigma.org
- Prominent recognition at all major Phi Tau Sigma events

**Silver** ($10,000)
- Bronze benefits.
- Posting your company’s job openings and internships in the Phi Tau Sigma Newsletter.

**Gold** ($15,000)
- Silver benefits.
- Acknowledgement of sponsorship and placement of corporate logo on plaque or scholarship/award memorabilia.

**Platinum** ($20,000)
- Gold benefits.
• A press release associated with significant contributions, distributed to allied professional and trade associations for circulation to their membership via their publications, e-news and/or listservs.
• Complimentary access to student resume database.

**Diamond ($25,000)**
• Platinum benefits.
• Prominent multi-year listing on the Phi Tau Sigma website as a sponsor of an Endowed Program.

Some corporations will match individual contributions of their employees, so check with your company about matching funds.
For more information contact the Treasurer, Kantha Shelke, Ph.D. (kantha@corvusblue.net), or the Executive Director, Kathryn L. Kotula, Ph.D. (klkotula@msn.com). Please write "Donation" or "Sponsorship" in the subject line.

**2019-2020 Contributing Partners:**

**Hawkins, Inc.** is a progressive concern that manufactures and distributes specialty chemicals and provides functional solutions for a wide variety of industries. The Food Ingredients Group is a leading manufacturer of innovative pathogen control technologies and ingredients for the food industry. The formation of Ingredient Works, an entity conceived to capitalize on expertise in functional ingredient applications, food industry knowledge, technical service, and an extensive product portfolio, is focused on the comprehensive science of shelf-life, providing customized solutions to both the common and the highly complex issues faced every day by food manufacturers. The ultimate goal for the Hawkins Food Ingredient Group is to re-define the concept of shelf life and become a complete solution provider to the food industry. (Contribution to support the Phi Tau Sigma Founders’ Scholarship, and the Phi Tau Sigma general fund.) **Hawkins, Inc. is a Bronze level Contributing Partner.**

**2019-2020 Sponsors and Donors:**

**Dr. Mary K. Schmidt** is the President of the International Union of Food Science and Technology (IUFoST), a Lifetime Member and a past President of Phi Tau Sigma, a Past President of the Institute of Food Technologists (IFT) and Adjunct Professor, University of Minnesota.

**Dr. Theodore P. Labuza** is a Lifetime Member of Phi Tau Sigma, a Past President of the Institute of Food Technologists (IFT) and the Morse Alumni Distinguished Teaching Professor of Food Science and Engineering, University of Minnesota.

**Dr. Fergus Clydesdale**, a Lifetime Member of Phi Tau Sigma, is the Distinguished Professor and Director of the UMass Food Science Policy Alliance, University of Massachusetts Amherst and a member of Phi Tau Sigma since the 1960’s.
Dr. Rakesh K. Singh is the Past President of Phi Tau Sigma, a Lifetime Member; and is Professor and Head of Department of Food Science & Technology at the University of Georgia. He is also a Fellow of IFT and Editor-in-Chief of LWT – Food Science and Technology. (Sponsorship of a Phi Tau Sigma Student Achievement Scholarship.)

Dr. Daryl and Mrs. Dawn Lund. Dr. Lund is past President of Phi Tau Sigma, Lifetime Member, past Treasurer, current Assistant Treasurer, and an Emeritus Professor, University of Wisconsin-Madison. (Sponsorship of the Dr. Daryl B. Lund Student International Travel Scholarship.)

Peter M Salmon, M.S., MBA, a Lifetime Member of Phi Tau Sigma, is the Founder and President of International Food Network, Inc., currently retired. (Sponsorship towards a Phi Tau Sigma Student Achievement Scholarship.)

Elsevier Publishing Company. Elsevier books have an established reputation for providing ground-breaking and expansive content; written by world renowned, award-winning authors and reviewed by an expert team of editors. Elsevier Food Science content covers aspects of food from chemical composition, to growth and production to distribution and consumption – from farm to fork. Our extensive collection includes eBooks, print books, series, handbooks, and major reference works, all complementing our expansive collection of food science journals and designed to help food science professionals continue to be innovative and make evidence-based contributions to the communities, translating knowledge into applications for the world. Our wide variety of books and eBooks reflects our passion for empowering early career researcher development, initiating innovation, and sharing established expertise in the Food Science field. (Donation towards a Phi Tau Sigma Student Achievement Scholarship.)

William Benjy Mikel, Ph.D., a Phi Tau Sigma past President and a Lifetime Member who appreciates the field of food science and technology. (Donation towards a Phi Tau Sigma Student Achievement Scholarship.)

Nina Teicholz, M.Phil. is an adjunct professor at New York University, investigative science journalist and author. Her international bestseller, *The Big Fat Surprise* has upended the conventional wisdom on dietary fat–especially saturated fat. The executive editor of “The Lancet” wrote, “this is a disquieting book about...ruthless silencing of dissent that has shaped our lives for decades ... researchers, clinicians, and health policy advisors should read this provocative book.” *The Big Fat Surprise* was named a 2014 *Best Book* by The Economist, *the Wall Street Journal, Forbes, Mother Jones,* and *Library Journal.* Teicholz is also the Executive Director of The Nutrition Coalition, a non-profit group that promotes evidence-based nutrition policy. She is a graduate of Stanford and Oxford Universities and previously served as associate director of the Center for Globalization and Sustainable Development at Columbia University. Teicholz is the only journalist to date to be elected to Phi Tau Sigma. (Sponsorship of the Phi Tau Sigma Special Recognition Award, and Phi Tau Sigma programs.)
David K. Park, B.S., Phi Tau Sigma Lifetime Member, is Principal, Food-Defense, LLC, providing expert food safety / food defense, USDA and USDA-FSIS Process Authority consultation for thermal and non-thermally processed low acid canned foods (LACF), acidified foods (AF), and refrigerated extended shelf life foods (ESL) and their packaging systems. (Donation towards a Phi Tau Sigma Student Achievement Scholarship.)

Dr. Catherine Adams Hutt and Peter Barton Hutt, Phi Tau Sigma Lifetime Members. Catherine is food safety and regulatory consultant and expert witness with RdR Solutions, and Peter is an attorney with Covington and Burling. Both are IFT Fellows. (Donation for the Dr. Gideon “Guy” Livingston Scholarship)

A donation was made towards a Phi Tau Sigma Scholarship by a Phi Tau Sigma Lifetime Member who wishes to remain anonymous.

A donation was made to Phi Tau Sigma by another Phi Tau Sigma Lifetime Member who wishes to remain anonymous.

Dr. Yaguang (Sunny) Luo, a Lifetime Member of Phi Tau Sigma, is a Food Scientist with the US Department of Agriculture, Agricultural Research Service. Her work focuses on food quality and safety of fresh and fresh-cut produce. Dr. Luo is the Past Chair of the IFT’s Fruit and Vegetable Product Division, and is also the Past President of Chinese American Food Society. (Donation towards the Phi Tau Sigma Outstanding Chapter of the Year Award.)

The Southern California Institute of Food Technologists Section (SCIFTS) is one of the largest sections of the international society of professional food personnel involved or interested in any of the various aspects of the field of food. Whether you are a food technologist, researcher, scientist, engineer, executive, administrator, educator, author, marketer, consultant, student, or salesperson, there is a place for you in this multi-faceted organization. "To fulfill human needs for a quality food supply through science, technology and education." This is the mission of the SCIFTS and of its members. In keeping with this mission, SCIFTS is proud to bring you the latest advances in OUR journey toward its fulfillment. (Donation towards the Phi Tau Sigma Outstanding Chapter of the Year Award.)

The American Meat Science Association is a broad-reaching organization of individuals that discovers, develops, and disseminates its collective meat science knowledge to provide leadership, education, and professional development. Our passion is to help meat science professionals achieve previously unimaginable levels of performance and reach even higher goals. We accomplish this by fostering a learning community of meat scientists, industry partners, outside thought leaders and other stakeholders who embrace this vision. AMSA is an individual membership organization of more than 1000 meat scientists representing major university research and teaching institutions and meat processing
companies in the United States and internationally. Its members conduct basic and applied research and education programs in muscle growth and development, meat quality, food safety, processing technology and consumer and marketing issues relevant to the international meat industry. AMSA is the premier provider of learning and knowledge for the meat science discipline. The association delivers innovative learning experiences, opportunities for peer-to-peer collaboration and leadership development programs designed to advance the meat science discipline. (Donation towards the refreshments at the Phi Tau Sigma and IFT Division Competition Awards Ceremony.)