



OUR MISSION

The Food Oral Processing (FOP) Research Laboratory at ZGU will apply integrated experimental approaches to study eating and sensory perception. The main objectives are to improve our fundamental understanding on the principles and mechanisms underpinning eating and sensory perception and to solve eating- and sensory-related problems of immediate concerns to consumers, industries and governments. We aim to make healthy food tastier and tasty food healthier.

2nd SENSEASIA INTERNATIONAL CONFERENCE MAY 15-17 2016, SHANGHAI, CHINA

FOP Group have been busy attending discussions and conferences. Led by Dr. Xinmiao Wang, students of the FOP group participated in organizing the 2nd Asian Sensory and Consumer Research Symposium, held in Shanghai between 15th and 17th of May 2016 and actively participated as volunteers. Members included *Master students*: Lv Zhihong, Gang Zheng Ying, Huifang Cai, Lv Cong; *PhD student*: Ms. Xia Hu; *Postdoctoral fellow*: Dr. Rutuja Upadhyay. Prof. Jianshe Chen was the key member of the scientific committee and had two invited lectures at the Conference. FOP students presented posters which received a very good response from the delegates from industry and academia. There was wonderful exchange of ideas during the Food Oral Processing conference workshop and the FOP members Marco Morgenstern, Prof. Jianshe Chen and Dr. Rutuja Upadhyay had all the questions answered from the audience. Hopefully next year the FOP students will pluck up the courage to contribute towards oral presentation during the next International Conference. Zhejiang Gongshang University was the co-organizer of the conference.



WORKSHOP AT SENSEASIA 2016: FOP Group had organized a workshop at SenseAsia on "Food Oral Processing". The session was chaired by Marco Morgenstern, New Zealand Institute for Plant & Food Research Limited. Topics included were:

1. Oral physiological and food physical perspectives of eating and sensory perception

J. Chen, Zhejiang Gongshang University, China

2. Importance of dynamic texture for flavor and interactions with consumers

D. Paredes, Takasago International Corp (USA), USA

3. Tribological approach to the sensory properties of oil-in-water emulsions

R. Upadhyay, J. Chen, Zhejiang Gongshang University, China



FOP WORKSHOP Q&A SESSION

SPONSORED PROJECT BY FIRMENICH: This project aims to reveal the underpinning principles and controlling mechanisms of mouthfeel, in particular the sweet aftertaste of tea beverages. The project is fully sponsored by Firmenich (Shanghai Research Centre), worth a total of RMB 850k over two years' time. One post-doctoral research fellow will be employed for this project. The project is expected to start before the end of the year.



VISITING FACULTY: MR. MARCO MORGENSTERN

Marco is a research leader at the New Zealand Institute for Plant & Food Research. Trained as a physicist in the Netherlands he moved to New Zealand and studied cereal foods processing, rheology and food

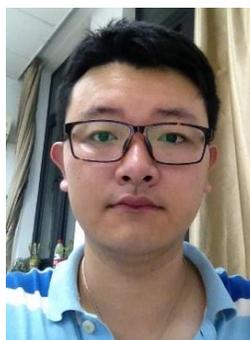
the cereal industry he has applied his expertise in projects ranging from product development to process automation. His current research is on the links between food structure, sensory perception and consumer preferences. He leads a team of scientists and technologists to develop fundamental understanding of food breakdown during mastication and its link to texture and flavor perception. Our master student Ms. Gangzheng Ying is working in close collaboration with his team in New Zealand.

4th Food Oral Processing Conference was held in Lausanne, Switzerland from July 3-6, 2016 at the SwissTech Convention Centre. The theme of the conference was "Food Oral Processing through life: interplay between food structure, sensory, pleasure and nutritional needs." This meeting was the fourth in a series of conferences aimed at the principles and mechanisms underpinning eating and sensory appreciation in order to seek fundamental understanding of food - body interactions and developing tasty, healthy foods. The conference was attended by 198 delegates from 28 countries. The next FOP conference will be held in July 2018 to be hosted by the University of Nottingham.

NEW COMMERS IN THE GROUP

PHD STUDENT

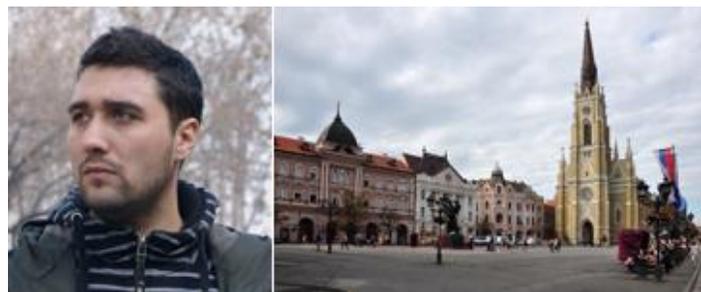
I, Miodrag Glumac come from the Republic of Serbia, Central Europe. I completed my master's degree at the Department of Biology and Ecology, Faculty of Sciences, University of Novi Sad. My main scientific focus was on fungal organisms and various properties e.g. bio-active compounds found in them and some early cancer research. Also, I held a teacher position at a medical high school with full year curriculum for some 3 years. I have one SCI list publication, 2 proceedings and 4 abstract publications. Embarking on an international scientific carrier, I am now undertaking my Ph. D in Food Sciences in Hangzhou, P.R. of China. My hobbies include outdoor activities, watching Sci-Fi movies, Traveling, E-sports, etc.



VISITING PhD STUDENT

I, Rui Ding, am a visiting PhD student from University of Leeds. My project is about the protein-polysaccharide conjugates as colloidal emulsifiers and stabilizers. I feel quite comfortable and warm in the research group even though I have just joined for a couple of weeks. People here are very friendly and willing to help my experiments from all aspects. I am so lucky and happy to work here.

MASTER STUDENTS 2016



Qin Lanxi



Linyi Mo



Huan Liu



Ting Liu

NEW OFFICE SPACE READY FOR USE

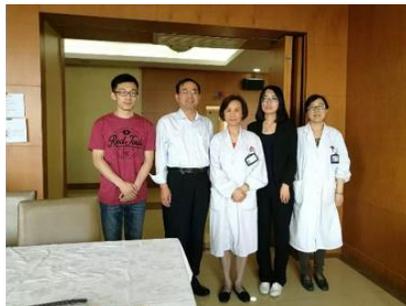
After months of negotiation and decoration, two new offices are now available for group use. Both new offices are located on 4th floor. Room 415 is a joint office and meeting room and will be allotted to Prof. Jianshe Chen, while, adjunct multi-function meeting room will be mainly for group discussions. Room 425 has 6 working desktops and will be a joint office for staff and post-doctoral fellows.

FOP OUT & ABOUT

MS. GANGYING ZHENG, MS. MINGSONG SU & ZHIHONG LV'S VISIT TO SHANGHAI HUADONG HOSPITAL

China has stepped into an aging society. With the increase of age and recession of physiological function, health problems are becoming a big challenge for elderlies, especially, eating and swallowing problem. Chewing and swallowing disorders may cause nutrient deficiency even causing choking. Main objectives of the investigation were to (1) establish feasible techniques for assessing major oral physiological properties of elderly patients; (2) establish possible correlations between those oral physiological properties and their influences on the eating and swallowing capability of elderly patients; and (3) establish reliable and objective methods for texture standardization of those elderly patients.

The Iowa Oral Performance Instrument (IOPI® Medical LLC Redmond, Washington, USA) and in-house made device for biting force for measuring main oral physiological properties. Another part of the experiment was eating and swallowing capability. Water swallow test and Volume-viscosity swallow test (V-VST) were used for testing elderly patients' swallowing capability. And the samples which involved in V-VST test is different concentration of 0.54%, 1.16%, 2.36% prepared according to IDDSI Standardization. The participants we recruited were the elderly who had different levels of dysphagia problem. First stage patient tests have been completed at Shanghai Huadong hospital. Second part investigation is planned for October/November. This project is sponsored by Chinese Society of Nutrition.



IDDSI MEETING: Industrial partners from Qirui Pharmaceutical Ltd. Jiangsu, Jian An Pharmaceutical Ltd., Shenzhen, Suzuken Co. Ltd. & Nutri Co. Ltd. from Japan and Prof. Zulin Dou from Zhongshan University met Prof. Jianshe Chen for discussion of the design & standardization of dysphagia food and for possible multipartner collaboration.



STUDENTS' SUMMER INTERNSHIPS

LV ZHIHONG, L'ORÉAL SHANGHAI

I was so glad and lucky to be a summer intern in the instrumental team of product performance evaluation (PPE) group, Research and Innovation center, L'Oréal, Shanghai. My task was to investigate correlations between instrumental data and sensory perception based on the data collected from 100+ skin parameters and 3 questionnaires from 120 volunteers, and then to decode them. However, it is difficult to determine this kind of correlation because of large set of data. I learnt and used different statistical methods to find correlations. When I met some intricate problems, I tried to make links with other departments, e.g. scientific computing team, and tried to come to a solution with the help of some valuable suggestions. Fortunately, hydration perception was found to have a high correlation with a kind of optical effects. My line manager was satisfied with the new finding and was ready to establish a new methodology on instrument to predict hydration perception which is quite good to reduce research cost. After summer internship in L'Oréal, my ability of statistical analysis has been enhanced significantly. A wonderful experience indeed!



HUIFANG CAI, AGRICULTURAL PRODUCTS PROCESSING RESEARCH INSTITUTE, GUANGDONG

I got an opportunity to do my internship at the Agricultural Products Processing Research Institute, Guangdong. The project title was "the deep-processing study of *Moringa* and microencapsulation of essential oil". I worked closely with the extract processing and analysis of nutritive composition from *Moringa* leaves. The nutritive composition included reducing sugar, polyphenols, protein, vitamin C, total flavonoids and so on. The relevant products such as *Moringa* tea, *Moringa* candy were also explored during my internship. I also helped fellow mates with the writing skills for two of their publications and also learnt about how to write a patent.



RECENT PUBLICATIONS

Laguna, L., Barrowclough, R.A., Chen, J., Sarkar, A. (2016). New approach to food difficulty perception: Food structure, food oral processing and individual's physical strength. *Journal of Texture Studies*, in Press. DOI: 10.1111/jtxs.12190.

蔡慧芳, 陈建设* (2016). “口腔”摩擦学在食品质构感官研究中的应用. *食品安全质量检测学报*, 7, 1969-1975.

Morel, P., Fiszman, F.* Chen, J. (2016). The role of starch and saliva on tribology studies and sensory perception of protein-added yogurts. *Food & Function*, accessible online. 10.1039/C6FO00259E.

Mosca, A.C.* & Chen, J. (2016). Food oral management: physiology and objective measurements. *Current Opinion in Food Science*, 9, 11-20.

Brossard, N., Cai, H., Osorio, F., Bordeu, E. & Chen, J.* (2016). “Oral” tribological study on the astringency sensation of red wines. *Journal of Texture Studies*, 47(5), 392-402.

Laguna, L., Mingioni, M., Maitre, I., Van Wymelbeke, V., Pirttijarvi, T., Artigas, M. G., Izabella, G.-K., Chen, J. & Sarkar, A. (2016). Perception of difficulties encountered in eating process from European elderlies' perspective. *Journal of Texture Studies*, 47, 342-352. DOI: 10.1111/jtxs.12192

Laguna, L., Ettelaie, R., Holmes, M. & Chen, J. (2016). A comparison between young and elderly adults investigating the manual and oral capabilities during the eating process. *Journal of Texture Studies*, 47, 361-372.

Laguna, L., Hetherington, M.M., Chen, J., Artigas, G. & Sarkar, A. (2016). Measuring eating capability, liking and difficulty perception of older adults: A textural consideration. *Food Quality and Preference*, 53, 47-56.

Chen, J.* (2016). Food for elderly: challenges and opportunities. *Journal of Texture Studies*, 47, 255-256.

Chen, L.*, Chen, J., Wu, K. & Yu, L. (2016). Improved low pH emulsification properties of glycosylated peanut protein isolate by ultrasound Maillard reaction. *Journal of Agricultural and Food Chemistry*, 64, 5531-5538.

Ettelaie, R.*, Holmes, M., Chen, J. & Farshchi, A. (2016). Steric stabilising properties of hydrophobically modified starch: amylose vs amylopectin. *Food Hydrocolloids*, 58, 364-377.

Upadhyay, R., Brossard, N. & Chen, J.* (2016). Mechanisms underlying astringency: introduction to an oral tribology approach. *Journal of Physics D*, 49, 10 (11pp)

Mingioni, M., Mehinagic, E., Laguna, L., Sarkar, A., Pirttijarvi, T., van Wymelbeke, V., Artigas, G., Chen, J., Kautola, H., Jarvenpaa, E., Maenpaa, T., Tahvonen, R., Grabska-Kobylecka, I. & Maitre, I. (2016). Fruit and vegetables liking among European elderly according to food preferences, attitudes towards food and dependency. *Food Quality and Preference*, 50, 27-37.

Chen, L., Chen, J., Yu, L. & Wu, K. (2016). Improved emulsifying capabilities of hydrolysates of soy protein isolate pretreated with high pressure microfluidization. *LWT-Food Science & Technology*, 69, 1-8.

Laguna, L. and Chen, J.* (2016). The eating capability: constituents and assessments. *Food Quality and Preference*, 48, 345-358.

ORBITUARY

**Malcolm Cornelius Bourne**

May 18, 1926 - October 3, 2016

“Blessed are those who die in the Lord.”

Malcolm Bourne died peacefully at home with his wife Janice and daughter Virginia at his side. He had mesothelioma and was in hospice care. Born to Winifred Collins and Herbert Bourne in Moonta, South Australia, ten minutes before his twin Margaret Cornelius. Malcolm and his

family soon moved to Adelaide where he became a very serious student learning science. At 13 years of age, chemistry became his first love, moving to a close second only when he married his precious wife Elizabeth Schumacher a decade later. They were happily married more than 53 years (1953-2007) before she died of cancer. He and Elizabeth had five children who brought joy to their life always. In 2008 Malcolm married Janice Robinson adding Janée Robinson (Mike Monk) and T. Leslie Robinson (Molly), loved stepchildren along with a step grandchild Mayla Robinson. Over his long career as a chemist and food scientist, Malcolm desired that his God-given gifts and his hard work to hone those gifts be used in the service of humankind to honor God. He lectured in over 40 countries and traveled to many more, worked to advance the use of good-tasting soy milk in Asian countries where malnourishment was prevalent, headed up a Chinese government-sponsored symposium in 1984 to further agriculture in China, spent two years helping to set up a graduate food science department at the University of the Philippines in Los Banos and, long into retirement, lectured around the country and the world, as well as mentored students and others in their fields of study. He was especially interested in Post-Harvest Food Loss and worked to spread the word, and solutions, for decades through papers, lectures, encyclopedia articles and upper-level classes at Cornell University. Among the many awards and honors Malcolm received over his long career in Food Science, he was and especially honored when he was presented with the International Award by the Institute of Food Technologists in 1992. Malcolm Bourne, Ph.D. graduated from the University of Adelaide, South Australia, AUS with a B.S. in Chemistry, worked ten years in industry as a chemist at Mum's Own food processing factory in Adelaide, did his Masters in Food Science and Ph.D. in Chemistry at the University of California, Davis. He then joined the faculty of Cornell University, as a full time research professor at the Agricultural Experiment Station in Geneva, NY. He was an Emeritus Professor in retirement. His major work at Cornell was in rheology and in the measurement of food texture. He wrote the definitive book on texture still used today.

We, all the FOP members, were fortunate enough to spend valuable time with him during his visit to ZGSU and FOP Laboratory and share wonderful memories of him and shall cherish the same throughout our lives.

MAY HIS SOUL REST IN PEACE.

GRANT INFORMATION: Grants and scholarships are available for the postdoctoral fellows and PhD students. Please contact us for more details.

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