

## Keynote Speakers

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### Some Recent and Future Research Questions for Distribution Packaging



**Vincent Rouillard**  
**Professor**  
**Mechanical Engineering, Victoria University, Australia**

In 1900, the leading mathematician David Hilbert defined some 23 challenging problems to be addressed by mathematicians of the future and many of those are still being addressed today. We proposed to try and do something similar (albeit more humble, pragmatic and achievable) for distribution packaging research. Our list will involve practical questions which will hopefully have a clear and direct link with the problems facing distribution packaging today and will also describe some current efforts from Jinan and Victoria Universities.

**Vincent's Biography:** Professor Vincent Rouillard holds a professorship in Mechanical Engineering at Victoria University where he chairs the Mechanical Engineering course and leads the Engineered Packaging and Distribution Research Group. He has 30 years' experience in environmental shock and vibration research and has published some 170 research articles to date. He is the foundation chair of IAPRI's Working Group for Distribution Packaging, a past member of the Technical Board of the International Safe Transit Association, a member of the ASTM International Committee on Packaging and on the editorial board of the Journal of Packaging Technology and Science. He has also held

visiting positions at Monash University, Australia; the University of Cambridge, UK; ITENE, Spain and the Defense Science and Technology Organization in Australia.



**Zhi-Wei Wang**  
**Professor & Assistant President of Jinan University**  
**Packaging Engineering Institute, Jinan University, China**

**Zhi-Wei's Biography:** Professor Wang is the deputy director of the National Steering Committee of Universities Education for Majors in Light Industry Category, and the director of the National Steering Sub-Committee of Universities Education for Major in Packaging Engineering, Ministry of Education. He established a complete talent training system for the undergraduates, postgraduates and doctoral students majored in packaging engineering in Jinan University and Jiangnan University, and cultivated the first batch of doctoral students majored in packaging engineering in China. He won the second prize of science and technology progress of National Department of Aeronautics and Astronautics, and the first prize of science and technology of Guangdong province. He is the editorial board member of Wiley's Journal of Packaging Technology and Science, and a past IAPRI board member.

### **Distribution Multi-Axis Simulation Testing—In Pursuit of Laboratory Results That Are Closer to Reality**



**Eric Joneson**  
**Vice President of Technology**  
**Lansmont Corporation, USA**

Sustainable initiatives have reduced the use of structural packaging, often increasing dependency on flexible packaging materials, including containment films. Increased susceptibility to transport dynamics now requires new testing technology and methodologies to validate unit load stability and protective performance.

**Biography:** Eric is responsible for promoting Lansmont's Field-to-Lab® methodology through demonstrable applications, undertaken with both academia and industry partners. He actively participates in key industry and research groups associated with performance packaging and has provided numerous technical presentations at related events throughout the world over the last twenty-plus years. He uses these interactions to help better understand research and commercial needs, thus driving further Lansmont product and technology innovation. He is considered a subject matter expert in the areas of both field data collection and analysis, as well as the development of directly related laboratory test procedures.

### **Dynamically-controlled Modified Atmosphere Container for Preserving Fresh Produce**



**Dong Sun Lee**  
**Professor Emeritus**  
**Kyungnam University, South Korea**

Technology development drives food packaging from passive to active mode and also from one-way display to interactive communicative intelligence. Innovative container or package with power source and/or sensor can perform diverse control actions or functions to keep its internal atmosphere within a range desired for fresh produce preservation under dynamic storage or distribution conditions. Gas diffusion tube was applied as a control device of gas transfer to balance fresh produce respiration. Various schemes of open/close of the gas diffusion tube were used to effectively maintain the oxygen and carbon dioxide concentrations of the container. The dynamically-controlled modified atmosphere containers were helpful for preserving the quality of fresh produce.

**Biography:** Professor Dong Sun Lee studied in Seoul National University (BS) and Yonsei University (MS, PhD), South Korea. He worked as a researcher at Food Research Institute of Agriculture and Fishery Development Corporation in Korea, as well as a visiting scholar at MIT and Rutgers University, USA, Mae Fah Luang University, Thailand and Jiangnan University, China. He serves on the editorial boards of scientific journals, Packaging Technology and Science (Wiley) and Food

Packaging and Shelf Life (Elsevier). He coauthored a book, 'Food Packaging Science and Technology' and coedited a book, 'Emerging Food Packaging Technologies.' After working at Kyungnam University, Korea for 33 years, now he is professor emeritus there and is involved in research project of developing container and package of kimchi, Korean fermented vegetable.

## **Updates on National Safety Standards and Risk Assessment of Food Contact Materials in China**



**Lei Zhu, Ph.D**  
**Deputy Director of Food Safety Standard Division III,**  
**CFSA, China**

The updates of the new FCM standards system and risk assessment on FCM will be summarized. On standards part, the major changes of the standards system will be compared, the requirements on compliance of FCM and challenges confronted by industry will be analyzed. On risk assessment part, updates on the collection of data on FCM exposure assessment and some individual risk assessment on FCM will be introduced.

**Biography:** Dr. Zhu is responsible for organizing the work of China National Safety Standards of food related products (including food contact materials) and evaluation of new varieties of food related products. She organized the establishment of the new Chinese food contact standards system. She also drafted some general standards of FCM including GB 9685 Standard of Additives Used in FCM, GB 4806.1 General Safety Requirements of FCM, GB 31603 General Manufacturing Practice of FCM, some commodity standards and series of implementation guidelines of FCM standards. She presides over numbers of research projects on safety of food contact materials. She is the member of the National Packaging Standardization Technology Committee (SAC/TC49), National Plastic Products Standardization Technology Committee (SAC/TC48) and expert committee of China National Food Industry Association and China Cleaning Industry Association.

## Recent Developments of Polymer Foams, Blends, Composites, Aerogels, and Hydrogels with Special Properties Suitable for Packaging Applications



**Lih-Sheng Turng**  
**Professor, Polymer Engineering Center and**  
**Wisconsin Institute for Discovery,**  
**University of Wisconsin—Madison, USA**

With various existing and potential packaging applications in mind, this talk will cover recent developments of lightweight polymer foams with quality surface; microcellular polymer blends with super ductility; biobased poly(lactic acid) with improved heat resistance; highly biochar-filled polymer composites with excellent electromagnetic interference shielding performance; highly compressible aerogels with hierarchical structure for selective oil absorption and oil/water separation, cellulose-based triboelectric nano generator as a new class of energy harvesting device or self-powered sensors; and biocompatible and highly stretchable hydrogels with self-healing and sensing capabilities.

**Biography:** Professor Lih-Sheng (Tom) Turng graduated from Cornell University with a Ph.D. degree in 1990. He worked in the industry for 10 years before joining the University of Wisconsin—Madison in 2000. At present, Professor Turng holds the Kuo K. and Cindy F. Wang Professorship and the Vilas Distinguished Achievement Professorship at the University of Wisconsin-Madison and is the Co-Director of the Polymer Engineering Center and Group Leader of the Tissue Engineering and Nanomedicine Group at the Wisconsin Institute for Discovery. He is a Fellow member of the American Society of Mechanical Engineers (ASME) and the Society of Plastics Engineers (SPE), and has 228 refereed journal papers, 5 books, 2 edited books in multiple language versions, 10 book chapters, 4 special issues in journals, 3 encyclopedia articles, 177 refereed conference papers, over 200 conference paper presentations, 13 Best Papers/Posters in conferences; and 15 patents and patent applications.

## Reducing Food Waste by Quality Controlled Logistics Using Intelligent Packaging



**Matthijs Dekker**  
**Associate Professor, Food Quality and Design Group,**  
**Wageningen University, The Netherlands**

Food waste is a global problem resulting in major environmental impact. Intelligent packaging can be used to reduce food waste when used in supply chain management based on Quality Controlled Logistics (QCL). It is demonstrated how monitoring food quality in combination with mathematical modelling enables the use of dynamic expiration dates (DED) on food packages. Simulations show that QCL by using the information on the quality of products that is provided by intelligent packaging can reduce food waste by more than 50% compared to FIFO or other issuing policies.

**Biography:** Dr. Matthijs Dekker is Associate Professor in the group Food Quality and Design at Wageningen University, The Netherlands. After obtaining his PhD in Food Process Engineering he joined Unilever Research Laboratory in The Netherlands for five years before returning to Wageningen University. His research is mainly on the effect of process and product design on health aspects of foods with a special interests in food packaging and mathematical modelling in food science. He has over 100 peer-reviewed publications.

## Chemical Substance Migration from FCM to Food and Its Prediction



**Chang-Ying Hu**  
**Professor, Department of Food Science and Engineering,**  
**Jinan University, China**

The safety of food packaging is the key factor of food safety. The migration of chemical substances is the main reason of the safety issue of food packaging. This

speech focuses on the migration study of highly risky and highly concerned substances and NIAS, the prediction of the migration and the development of safety evaluation. The relative work of our research group will be introduced as well.

**Biography:** Dr. Hu is a professor in Department of Food Science and Engineering at Jinan University and also a key member of the Key Laboratory of Product Packaging and Logistics of Guangdong Higher Education Institutes. She was the visiting scholar in Rutgers, the State University of New Jersey in the USA. Her research interests focus on two aspects: food packaging & safety and functional foods. She has implemented the projects supported by the National Natural Science Foundation of China and the National Key Technology R&D Program. She has over 100 publications and 5 authorized patents with 2 used in the industry.