



24TH IAPRI
SYMPOSIUM ON PACKAGING

MAY 17, 18, 19, 20 2009
GREENVILLE, S.C.

HOSTED BY CLEMSON UNIVERSITY DEPARTMENT OF PACKAGING SCIENCE

SYMPOSIUM GUIDE

Sunday May 17th

9:00 am - 1:00 pm Board Meeting, incl lunch

1:30-5:30 pm Working Group Sessions

1:30 Flexible Packaging

2:30 Packaging and the Environment

3:30 Distribution Packaging

4:30 Product Protection & Anti Counterfeiting

5:00 Research Networking

6:30 pm Welcome Reception and Buffet Dinner

Monday May 18th

7:00 Breakfast

8:00 Welcome and Opening Remarks

8:15-9:00 Keynote Address, Jim George, Editor-in-Chief, Shelf Impact! Magazine

Technical Sessions - Sustainability

Time	ID	Authors	Title
9:15	49	Rafael Auras , Michigan State University DongHo Kang , Michigan State University Greg Curtzwiler , California Polytechnic State University Keith Vorst , California Polytechnic State University Jay Singh , California Polytechnic State University	Stepwise Regression Analysis to Determine the Recycled Content in Post-Consumer PET Sheets
9:45	81	Chike Ifezue , Clemson University Kay Cooksey , Clemson University Scott Whiteside , Clemson University Duncan Darby , Clemson University	This Research Analyzes The Effect Of Three Renewable Bioplastics And Biodegradable Materials On Quality And Self Life Of Celery Due To Differences In Film Permeability.
10:15		BREAK	
10:45	52	Carlos López , ITENE Antonio Dobón , ITENE Juan Alcaráz , ITENE	New and Sustainable Packaging for Plastic Cosmetic Tubes: Applying Ecodesign Methodology.
11:15	47	Eva Almenar , School of Packaging, Michigan State University MinJung Joo , School of Packaging, Michigan State University Hayati Samsudin , School of Packaging, Michigan State University Rafael Auras , School of Packaging, Michigan State University	An Ecofriendly Container For Ready-to-eat Blackberries Matching Lifestyle Necessities.
11:45		End of Morning Sessions, This time may be used to set up for poster presentations.	
12:15		LUNCH	
1:15	29	Xiaohong Feng , China National Export Commodities Packaging Research Institute	The Research on Feasibility of Green Packaging with Modern Technology.
1:45	48	Eva Almenar , School of Packaging, Michigan State University Patnarin Benyathiar , School of Packaging, Michigan State University Rafael Auras , School of Packaging, Michigan State University Janice Harte , Food Science and Human Nutrition, Michigan State University	Corn-based Plastic Containers As An Effective Packaging System For Fresh-cut Green Salad For Quick Service Restaurants.
2:15	85	Bianca Stiller , Clemson University Scott Whiteside , Clemson University Kay Cooksey , Clemson University Ron Thomas , Clemson University	The Effect of Montmorillonite on the Properties of Mung Bean Starch film.
2:45	78	Sarah Buelow , Victoria University Helen Lewis , Sustainable Packaging Alliance Kees Sonneveld , Victoria University	The Role of Labels in Directing Consumer Packaging Waste.
3:15		BREAK	
3:45	43	Dr. Ingo Bueren , International Packaging Institute Dr. Heinz Winzeler , IPI/Ecoengineering Per-Stefan Gersbro , IPI/Paccebo Christina Skjöldebrand , Lund University	Food Wastage and its Reduction Through Packaging.
4:15	P38	Rupert Andrew Hurley , Clemson Matthew Landford , Clemson Matthew Whitlock , Clemson Judson Valentine , Clemson Maggie Capalan , Clemson	A Creative Inquiry: Entrepreneurial Packaging Design Results.

5:15-6:30

Formal Poster Session

Monday May 18th

7:00 Breakfast

8:00 Welcome and Opening Remarks

8:15-9:00 Keynote Address, Jim George, Editor-in-Chief, Shelf Impact! Magazine

Technical Sessions - Supply Chain, Distribution & Transportation

Time	ID	Authors	Title
9:15	31	Vincent Rouillard , Victoria University Michael Sek , Victoria University	On the Elevated Kurtosis of Vehicle Vibrations
9:45	34	Zhi-Wei Wang , Jinan University Jun Wang , Jinan University Chang-Ying Hu , Jinan University	Three Levels Inverse Substructure Method To Analyses Product-transport-system.
10:15	BREAK		
10:45	35	Michael Sek , Victoria University V. Rouillard , Victoria University	A Method for the Laboratory Synthesis of Non-Gaussian Vehicle Vibrations.
11:15	46	Manuel garcia-romeu martinez , itene V. Rouillard , victoria university	Determining Vibration Levels for Distribution Testing.
11:45	End of Morning Sessions, This time may be used to set up for poster presentations.		
12:15	LUNCH		
1:15	70	William Kipp , ISTA	Recommended Guidelines For The Recording And Analysis Of Transportation/distribution Dynamic Data.
1:45	75	David Shires , Pira International	Non-Stationarity and Kurtosis in Vibration.
2:15	77	Dale Root , Lansmont Corporation Eric Joneson , Lansmont Corporation	Constructed Probability Spectra
2:45	10	Joseph Stallings , School of Packaging,Michigan State University Paul Singh , School of Packaging,Michigan State University	Measurement and Analysis of Temperature and Pressure in High Altitude Air Shipments.
3:15	BREAK		
3:45	61	Kyle Dunno , Clemson University	Analysis of In flight Aircraft Vibration: Single Propeller Airplane.
4:15	17	Casper Chiang , Clorox Company Ben Bowen , Rochester Institute of Technology Stephen Costa , Clorox Company	Mechanical and Thermal Analysis on Plastic Films for Stretch Hood Application.
4:45	33	Laura Bix , Michigan State University Ondrea Kassarjian , Lansmont Corporation John Linz , Michigan State University Gary Burgess , Michigan State University	Examining The Effect Of Secondary Packaging And Pressure Differential On Microbial Ingress In A Sterile Medical Device Tray.
5:15-6:30	Formal Poster Session		

Poster Session Information				
ID	Location	Topic	Authors	Title
P4		Advanced Packaging Materials	Wen Cai Xu , Beijing Institute of Graphic Communication Li Dong Li , Beijing Institute of Graphic Communication Liu Quan Xiao , Beijing Institute of Graphic Communication Luo Shi Yong , Beijing Institute of Graphic Communication	Functionalized Polypropylene Packaging Film.
P6		Advanced Packaging Materials	Quanxiao Liu , Beijing Institute of Graphic Communication Lijuan Xu , Beijing Institute of Graphic Communication Wencai Xu , Beijing Institute of Graphic Communication Dongli Li , Beijing Institute of Graphic Communication	Study On Starch-acrylamide-diallyl Dimethyl Ammonium Chloride Grafting.
P7		Advanced Packaging Materials	Lijuan Xu , Beijing Institute of Graphic Communication Quanxiao Liu , Beijing Institute of Graphic Communication Hua Cao , Beijing Institute of Graphic Communication Wencai Xu , Beijing Institute of Graphic Communication	Application Of Cationic Starch In Reproduced Paper.
P8		Advanced Packaging Materials	Luo Shiyong , Beijing Institute of Graphic Communication Chen Meng , Beijing Institute of Graphic Communication Zhang Xinlin , Beijing Institute of Graphic Communication Xu Wencai , Beijing Institute of Graphic Communication	Nano-size Silver Particle Colloidal Sol As An Additives For Antibacterial Packaging.
P14		Advanced Packaging Materials	Eva Martínez , AIDIMA	Project - Research On VCI Papers And Their Use For The Furniture Transport.
P16		Advanced Packaging Materials	Tunyarut Jinkarn , The Department of Packaging Technology, Kasetsart University Suchada Thawornwiriyanan , The Department of Packaging Technology, Kasetsart University Pornchai Rattanapun , The Department of Packaging Technology, Chiang Mai University Dheerawan Boonyawan , Physics Dept., Chiang Mai University	Improving The Water Resistance Property Of Paperboard For Packaging Application By Sf6 Plasma.
P19		Advanced Packaging Materials	Young-eun Lee , Department of Packaging, Yonsei University Youn-suk, Lee , Department of Packaging, Yonsei University Su-il Park , Department of Packaging, Yonsei University	Development Of Functional Packaging Films For Freshness Extension Of Oriental Melon.
P28		Advanced Packaging Materials	Si-hoon Jang , Department of Packaging, Yonsei University Su-il Park , Department of Packaging, Yonsei University	Prediction Of Shelf-life Of Degradable Packaging Materials Under UV Radiation..
P33		Advanced Packaging Materials	Emmanuel Guillon , ESIEC - ICMR UMR CNRS 6229 Ziad Damaj , Université de Reims Champagne-Ardenne - Catherine Joly , ESIEC - INRA UMR FARE	Toward New Polymeric Oxygen Scavenging Systems, Formation Of PVA-oxygen Scavenger And EVOH-oxygen Scavenger Films.
PO11		Advanced Packaging Materials	Dong Li Li , Beijing Institute of Graphic Communication Fu Ya Bo , Beijing Institute of Graphic Communication Xu Wen Cai , Beijing Institute of Graphic Communication Liu Quan Xiao , Beijing Institute of Graphic Communication	Nano-Modification of Polyethylene Packaging Films.
PO65		Advanced Packaging Materials	Qiang Chen , Beijing Institute of Graphic Communication Zhenduo Wang , Beijing Institute of Graphic Communication Lizhen Yang , Beijing Institute of Graphic Communication Zhongwei Liu , Beijing Institute of Graphic Communication Yanping Hao , Beijing Institute of Graphic Communication	Title Pending

Poster Session Information				
ID	Location	Topic	Authors	Title
PO80		Advanced Packaging Materials	Rijosh Cheruvathur, Clemson University Duncan Darby, Clemson University Roger Kaas, Clemson University Kay Cooksey, Clemson University Pat Gerard, Clemson University	The effect of adhesive bonds on the puncture resistance of laminates.
PO14		Advanced Packaging Materials	Hua Cao , Beijing institute of Graphic Communication Quan-Xiao Liu , Beijing institute of Graphic Communication Guo-Rong Cao , Beijing institute of Graphic Communication Wen-Cai Xu , Beijing institute of Graphic Communications	The Synthesis And Application Of Cationically Modified Graft Potato Starch As A Paper Strengthening Agent On Secondary Fiber.
PO67		Food Packaging	Maria Rubino , Michigan State University E. E. Quist , Michigan State University M. I. Rubino , Michigan State University R. Lu , USDA R. Auras , Michigan State University	Evaluation Of Waxing Conditions On Gloss Of 'Red Delicious' Apples.
P10		Packaging Design	Liu Shujing , Beijing Institute of Graphic Communication Cao Guorong , Beijing Institute of Graphic Communication Xu Wencai , Beijing Institute of Graphic Communication Liu Quanxiao , Beijing Institute of Graphic Communication	Analyzing The Complex Process Of The Product Packaging By Using Kentucky Fried Chicken W-packaged Chicken Wings Real Case.
P31		Packaging Design	Douglas Moyer , Michigan State University	Organization Behavior And The Packaging Engineering Function.
P32		Packaging Design	Douglas Moyer , Michigan State University	Predictive Packaging Design Bias Resulting from Organizational Behavior and the Packaging Engineering Function.
PO71		Current Issues in Packaging	John Spink , Michigan State University	Defining Product And Package Protection: Food Safety, Food Fraud, And Food Defense.

Poster Session Information				
ID	Location	Topic	Authors	Title
P5		Food Packaging	Terhen Järvi-Kääriäinen , Association of Packaging Technology and Research Heikkilä, Mari I , University of Helsinki Helen, Harry , University of Helsinki Ollila, Margareetta , Association for Packaging Technology and Research	O2 and CO2 Levels Of Meat Cold Cuts Packaged In MAP at Retail Level.
P29		Food Packaging	Yangjai Shin , Michigan State Univ.	Abstract Development Of Active Packaging For Cosmetics; Application Of Oxygen Scavenger.
P30		Food Packaging	Ji Young Park , msu Jai Nueng Kim , Yonsei university	Antifungal activity of mustard oil coated packaging materials for food packaging and shelf-life extension of packaged steamed bread with developed active packaging materials
P34		Food Packaging	Dr. Bruce Harte , School of packaging, Michigan State University, East Lansing, MI, USA Napawan Kositruangchai , Chiang Mai University S. Thongkantha , Postharvest Technology Innovation Center, Postharvest Technology Research Institute, Chiang Mai University, Chiang Mai, Thailand T. Boonphoekaew , Postharvest Technology Innovation Center, Department of Biology, Faculty of Science, Chiang Mai University, Chiang Mai, Thailand	Extension Shelf Life of Oyster Mushrooms (Pleurotus Ostreatus) Using Pretreatment Methods.
PO19		Food Packaging	Soren R. Ostergaard , Danish Technological Institute	Packaging Robot Replicating An Upper Human Body And Head With Sight, Arms, Hands, Fingers And Senses.
PO25		Food Packaging	Li-Xin Lu , Jiangnan University Lin Yuan , Jiangnan University	Relative Humidity In Packs Of Cookies.
PO37		Food Packaging	Helle Allermann , The Danish Technological Institute	Future Demands To Packaging Of Cut Flowers, Fruits And Vegetables.
PO53		Food Packaging	Ron Thomas , Clemson University Ebuel Sirmats , Clemson University Sunil Mangalassary , Clemson University	The Antimicrobial Effectiveness Of Lower Molecular Weight (LMW) Chitosan Solutions Was Tested Against Listeria Innocua Inoculated On TSA and MOX Agar Plates By The Direct Droplet Method.
PO55		Food Packaging	Guorong Cao , Beijing Institute of Graphic Communication Wencai Xu , Beijing Institute of Graphic Communication Lichun Peng , Beijing Institute of Graphic Communication	The study on Determination and Migration of Coating Additives and Contaminants in Canned Food.

Poster Session Information				
ID	Location	Topic	Authors	Title
P15		Distribution and Transport Packaging	Raúl Moreno , AIDIMA	Research Of The Behavior Of The Packaging For Dangerous Goods Used In Terrestrial And Sea Transport Under Vibration For Their Safety Evaluation And Improvement.
P25		Distribution and Transport Packaging	Jongyoung Kim , Michigan State University Diana Twede , School of Packaging, Michigan State University, USA Myunghoon Lee , Jung-Myung Co., Korea	Measuring The Effectiveness Of Standard Packaging Modules In A Supply Chain.
P24		Distribution and Transport Packaging	Guilin Hu , Zhejiang University of Science and Technology Jiang Lin , Zhejiang University of Science and Technology	Title Pending
P20		Distribution and Transport Packaging	SuYong Lee , Department of Packaging, Yonsei university JaiNeung, Kim , Department of Packaging, Yonsei university	Title Pending
P35		Distribution and Transport Packaging	Suzan Otari , ESIEC, Unviversity of Reims Serge Odof , ESIEC, Unviversity of Reims Jean-Baptiste NOLOT , ESIEC, Unviversity of Reims Pascal Vasseur , ESIEC, Unviversity of Reims Damien Erre , ESIEC, Unviversity of Reims	Effect Of Recording Parameters On Statistical Characteristics Of Vehicle Transport Vibrations.
P39		Distribution and Transport Packaging	H.J. Park , Clemson University S.H. Bang , School of Life Sciences and Biotechnology, Korea University Y.M. Yu , Chungnam National University I.C. Hwang , Central Research Institute, Kyung Nong Co. Ltd	Preparation and Characterization of Size Controlled Nano-Carrier System.
P9		Distribution and Transport Packaging	Daniel Goodwin , Rochester Institute of Technology Changfeng Ge , Rochester Institute of Technology Thomas Kausch , Rochester Institute of Technology John Siy , Eastman Kodak Company	Application Of A Compression Creep Measurement Technique To Predict Time To Failure Of Bliss Cases And Wrap-around Boxes.
P13		Distribution and Transport Packaging	Napawan Kositruangchai , Chiang-Mai University Ubonrat Siripatrawan , Chulalongkorn University, Thailand. Suwassa Pongamphai , King Mongkut University of Technology at Thonburi, Thailand. Bruce R Harte , School of Packaging, Michigan State University, Michigan, USA. Nucharin Luangsa-ard , Department of Printing and Packaging Technology, King Mongkut's University of Technology, Thonburi, Thailand	Antioxidant Polyphenols in Packaged Mulberry (<i>Morus alba</i> L.) Leaves During Storage.
PO73		Distribution and Transport Packaging	Robb Clarke , Michigan State University Laura Bix , Michigan State University	Unique Device Identification: A Necessary Requirement For Safe Health Care.
PO86		Distribution and Transport Packaging	Rupert Andrew Hurley , Clemson University Kimmel, R. , Clemson University Cooksey, K. , Clemson University Bix, L. , Michigan State University Darby, D. , Clemson University	Title Pending
PO9		Distribution and Transport Packaging	Paul Singh , Michigan State University	Measurement Of Climatic And Handling Conditions Of Sea Containers In International Shipments.

Tuesday, May 19th

7:00 Breakfast

Technical Sessions - Food Packaging

Time	ID	Authors	Title
8:00	87	Sunil Mangalassary , Clemson University Kay Cooksey , Clemson University	Evaluation Of Antimicrobial Activity Of Chitosan-methyl Cellulose Composite Films Containing Nisin Or Lauric Acid.
8:30	23	Kees Sonneveld , Victoria University M.J. Cran , Victoria University L.A.S. Rupika , Victoria University S. W. Bigger , Victoria University J. Miltz , Technion, Israel	Migration Of Natural Antimicrobial Agents From Low Density Polyethylene Films.
9:00	68	Cristina Nerín de la Puerta , University of Zaragoza Cristina Sánchez Jarabo , Artibal s.a. Pilar Alfaro Tena , Universidad de Zaragoza Margarita Aznar Ramos , Universidad de Zaragoza	Antimicrobial Active Packaging For Soft-curd Cheese.
9:30	P5	Terhen Järvi-Kääriäinen , Association of Packaging Technology and Research	O2 and CO2 levels of meat cold cuts packaged in MAP at retail level.
10:00	BREAK		
10:30	82	Scott Hartley , Clemson University Kay Cooksey , Clemson University Scott Whiteside , Clemson University Duncan Darby , Clemson University	Efficacy Of Chitosan Films On Inhibition Of Listeria Monocytogenes In Vacuum Packaged Hot Dogs.
11:00	24	Kees Sonneveld , Victoria University M.J. Cran , Victoria University L.A.S. Rupika , Victoria University S. W. Bigger , Victoria University J. Miltz , Technion, Israel	Efficacy Of Combined Antimicrobial Agents In Food Packaging Films.
11:30	62	Cristina Nerin , I3A, University of Zaragoza Paula Vera , I3A, University of Zaragoza Margarita Aznar , I3A, University of Zaragoza	Diffusion And Migration From Hot-melt Adhesives In Food Packaging Materials.
12:00	BREAK		
12:15	Depart by bus for Clemson - Lunch and Tours		
6:30	Reception and Banquet - At Westin Poinsett Hotel		

Tuesday, May 19th

7:00 Breakfast

Technical Sessions - Packaging Design

Time	ID	Authors	Title
8:00	45	Jay Singh , Cal Poly State University Aric Krasowski , Cal Poly State University	Life Cycle Inventory (LCI) as a Tool for Sustainable Package System Design.
8:30	83	Rupert Andrew Hurley , Clemson University	Contemporary Packaging Design Trends.
9:00	39	Ebru Kocamanlar , Turkish Packaging Manufacturers Association	A Suggestion For A Model On The Effect Of Packaging On The Purchasing Behaviours For Fast Consumption Goods.
9:30	21	Helle Antvorskov , Danish Technological Institute Soren R. Ostergaard , Danish Technological Institute Birgitte Gert Jensen , Aarhus School of Architecture Sofie Hartvig Widding , People&Product	User-friendly Packaging – Guidelines For The Industry Easy Opening Of Consumer Packaging.
10:00	BREAK		
10:30	28	Eva Martinez , AIDIMA	MODELPACK. Advanced Quality Prediction Tool for Knowledge-Driven Packaging Design and Manufacturing in European SMEs.
11:00	30	Renee Wever , Delft University of Technology	The Social Component of Sustainable Packaging.
11:30	32	Laura Bix , Michigan State University Raghav Prashant Sundar , Michigan State University	The Effect of Color Contrast of Text on the Legibility and Noticeability of Prescription Drug Labels.
12:00	BREAK		
12:15	Depart by bus for Clemson - Lunch and Tours		
6:30	Reception and Banquet - At Westin Poinsett Hotel		

Wednesday, May 20th

7:00 Breakfast

Technical Sessions - Current issues in Packaging

Time	ID	Authors	Title
8:00	79	Youngjae Byun , Clemson University Kay Cooksey , Clemson University Duncan Darby , Clemson University Paul Dawson , Clemson University Scott Whiteside , Clemson University	Moisture-triggering Active Gelatin Film Containing Oxygen Scavenging Nanoparticle.
8:30	88	S.K. Chung , College of Life sciences and Biotechnology, Korea, University, Seoul, Korea H.J. Park , Clemson University	Resistance Of Packaging Films To Penetration And Identification Of Damage By Insects.
9:00	71	Hua Cao , Beijing institute of Graphic Communication Quan-Xiao , Beijing institute of Graphic Communication Guo-Rong Cao , Beijing institute of Graphic Communication Wen-Cai Xu , Beijing institute of Graphic Communication	The Synthesis And Application Of Cationically Modified Graft Potato Starch As A Paper Strength Agent On Secondary Fiber.

9:30 **BREAK**

Technical Sessions - Packaging Design

10:00	15	Erick Tempelman , Delft University	First Steps Towards A Design For Impact Resistance Methodology.
10:30	42	Dr. Ingo Bueren , International Packaging Institute	Modern Ways For Efficient Design And Construction Of Flexible Packages.
11:00	44	Siv Lindberg , STFI-Packforsk AB Annika Kihlstedt , STFI-Packforsk AB	Tactile Packaging Design – The Importance Of Shape For The Tactile Perception Of Board Materials.
11:30	69	Elina Rusko , VTT Technical Research Centre of Finland Jali Heilmann , VTT Technical Research Centre of Finland Sanna Honkaniemi , Helsinki School of Economics Toni-Matti Karjalainen , Helsinki School of Economics Virpi Korhonen , Association of Packaging Technology and Research	Integrating Technology, Design And Marketing For Future Package Communication.

Wednesday, May 20th

7:00 Breakfast

Technical Sessions - Supply Chain, Distribution and Transportation

Time	ID	Authors	Title
8:00	26	Francisco Javier Turégano, AIDIMA	Development Of Logistic Unit Loads For The Distribution Of Furniture.
8:30	12	Young-Du Kim, Kobe University Katsuhiko Saito, Kobe University	Study On Optimum Tension Of Securing Rope.
9:00	72	Robb Clarke, Michigan State University	Title Pending

9:30 BREAK

Technical Sessions - Supply Chain, Distribution and Transportation

10:00	18	Katsuhiko Saito, Kobe University Kazuaki Kawaguchi, Kobe University	Evaluation Of Free Fall Test For Container By High Speed Camera.
10:30	38	Tunyarut Jinkarn, The Department of Packaging Technology, Kasetsart University JutaKeaw Vorakittivanich, The Department of Packaging Technology, Kasetsart University	Viscoelastic Properties Of Corrugated Board Under Stimulated Temperature.
11:00	51	Cristina Guzman, MSU-SoP Diana Twede, MSU-SoP Diane Mollenkopf, UTK-MSU Bixby Cooper, MSU-MSU	Perception Of The Value Of Grocery Pallet Systems: The Retailer's Point Of View.
11:30	8	Paul Singh (Ph.d), School of Packaging, Michigan State University Koushik Saha (M.S.), School of Packaging, Michigan State University	Development Of New Standardized Package System For Imported Fresh Mangos.