

DAY ONE

International Symposium of Food Rheology and Structure

Monday, 12th of June 2023 – Wageningen Berg

08.30 – 09.00 Registration
09.00 – 09.10 Opening Ceremony

09.10 – 09.50 Plenary lecture Peter Fischer (ETZ Zurich, Switzerland) (Chair: Leonard Sagis, Bosrandzaal)
Neutrons and Food: From emulsion and foams to analogues

Session A	Colloidal Suspensions	Chair: Leonard Sagis Bosrandzaal	Session B	Rheology Methods	Chair: Elke Scholten Lijsterbeszaal
09.50 – 10.10	Damian Renggli, MIT, USA Thermogelation nanoemulsions stabilized by pea protein		09.50 – 10.10	Ruifen Li, Aarhus University, Denmark Structural evolution of pea-derived albumins using SAXS during pH changes and heat treatment	
10.10 – 10.30	Jack Yang, WUR, the Netherlands Plant protein functionality-driven refinement: linking plant protein refinement with multiphase functionality using interfacial rheology		10.10 – 10.30	Theresia Heiden-Hecht, Forschungszentrum Jülich, Germany Neutron scattering and neutron spectroscopy for insights into food emulsion interfaces	

10.30 – 11.00 Coffee break

Session A	Colloidal Suspensions	Chair: Atze-Jan van der Goot Bosrandzaal	Session B	Rheology Methods	Chair: Jasper Landman Lijsterbeszaal
11.00 – 11.20	Rui Pereira, INL, Portugal Development of an innovative plant-based mayonnaise stabilized by vegetable proteins		11.00 – 11.20	Julie Frost Dahl, Aarhus University, Denmark Rheological fingerprinting of pizza cheese using large deformation oscillatory rheology	
11.20 – 11.40	Qi Wang, WUR, the Netherlands Effect of different freezing agents on ice crystal size and physical properties of ice cream		11.20 – 11.40	Laurel Kroo, MIT, USA Quantifying extensional texture in viscoelastic cheese melts using composite harmonic exponential waveforms (CHEW)	
11.40 – 12.00	Wonsik Shin, Seoul National University, Korea Effect of Cellulose Nanocrystals on the stability of Pickering Emulsions prepared with the microalgal protein		11.40 – 12.00	Erich Windhab, ETH Zurich, Switzerland In-line rheometry and spectroscopy for controlled tailoring of textural and nutritional characteristics of HMEC-processed plant protein-based meat alternatives	
12.00 – 12.20	Roland Ramsch, Formulaction, France Plant protein integration for food emulsion		12.00 – 12.20	Astrid Ahlinder, RISE, Sweden 3D printing of food for dysphagia – shaping and functionality	

12.30 – 14.00 Lunch

14.00 – 14.40 Plenary lecture **Camilla Terenzi (Wageningen University, the Netherlands)** (Chair: Elke Scholten, Bosrandzaal)
Quantifying food structure formation under flow by MRI

Session A	Colloidal Suspensions	Chair: Peter Fischer Bosrandzaal	Session B	Rheology Methods	Chair: Deniz Gunes Lijsterbeszaal
14.40 – 15.00	Xiaoning Zhang, WUR, the Netherlands Interfacial and foaming properties of jackfruit seed protein extract		14.40 – 15.00	Audrey Gilbert, Laval University, Canada Evaluation of the ability of microscopic image analysis and low-frequency time-domain NMR to predict an assess stirred commercial yogurts quality	
15.00 – 15.20	Judith Krom, Max Planck Institute for Polymer Research, Germany Structure-function relationships of protein-based foams		15.00 – 15.20	Fraser Laidlaw, University of Edinburgh, UK Particle size analysis of milk – A case of mistaken identity?	

15.20 – 15.50 Coffee break

Session A	Colloidal Suspensions	Chair: Stephan Drusch Bosrandzaal	Session B	Rheology Methods	Chair: Camilla Terenzi Lijsterbeszaal
15.50 – 16.10	Sonia Calligaris, University of Udine, Italy Effect of moderate hyperbaric treatment on lipid crystallization		15.50 – 16.10	Niklas Lorén, RISE, Sweden 3D structure evolution during bread baking in a combined microwave-convective oven revealed by in-situ synchrotron-based X-ray microtomography	
16.10 – 16.30	Daniel Golodnizky, Technion, Israel The Effect of the HLB value of sucrose ester on physicochemical properties of bigel systems		16.10 – 16.30	Mark Auty, Mondelez International, UK Confocal Raman Spectroscopy of low moisture food products: Breakthroughs and Challenges	
16.30 – 16.50	Yasamin Soleimani Boroujeni, University of Guelph, Canada Rheological, mechanical, and microstructural characterization of oleogels of oil glycerolysis products: the suitability as fat replacers in plant-based meat analogues		16.30 – 16.50	Isabella Riley, KU Leuven, Belgium How potato starch structural transitions impact microstructure development during deep frying	

17.00 – 18.30 Poster Session

18.30 Dinner

DAY TWO

International Symposium of Food Rheology and Structure

Tuesday, 13th of June 2023 – Wageningen Berg

09.10 – 09.50 Plenary lecture Ilja Voets (Eindhoven University, the Netherlands) (Chair: Peter Fischer, Bosrandzaal)
Foods inside out: Unveiling the hidden architecture of nanostructured soft materials by super-resolution microscopy

Session C	Interfacial Rheology	Chair: Niklas Loren Bosrandzaal	Session D	Tribology	Chair: Leonard Sagis Lijsterbeszaal
09.40 – 10.00	Anteun de Groot, WUR, the Netherlands White Asparagus bud proteins, from waste to interface stabilizer in food foams		09.40 – 10.00	Lei Ji, WUR, the Netherlands Tailoring the mouthfeel of dairy-based beverages with polysaccharides: bridging tribology with sensory perception	
10.00 – 10.20	Marine Haas, AgrosParisTech - CNIEL, France Exploring milk fat/water interface colonisation and organisation: How surface tension measurements can reveal hidden insights		10.00 – 10.20	Jack Yang, WUR, the Netherlands Oleosomes: natural oil droplets for dairy alternatives studies by tribology	
10.20 – 10.40	Anja Heyse, Technical University of Berlin, Germany The impact of disulfide bonds of whey protein beta-lactoglobulin on the structural conformation and adsorption behavior at the oil/water interface		10.20 – 10.40	Maria Tecuanhuey, Nestlé, Switzerland Predicting oily mouthcoating of pure vegetable oils using tribology	

10.40 – 11.10 Coffee break

Session C	Interfacial Rheology	Chair: Peter Fischer Bosrandzaal	Session D	Tribology	Chair: Elke Scholten Lijsterbeszaal
11.10 – 11.30	Penghui Shen, WUR, the Netherlands Cruceferin versus napin – air-water interface and foam stabilizing properties of rapeseed storage proteins		11.10 – 11.30	Joerg Laeuger, Anton Paar, Germany New tools for assessing powder rheology of food systems	
11.30 – 11.50	Kerstin Risse, Technical University of Berlin, Germany (Non)linear interfacial rheology of protein-phospholipid stabilized oil-water interfaces: Role of the molecular structure of phospholipids on the interfacial viscoelasticity		11.30 – 11.50	Prateek Sharma, Utah State University, USA Impact of emulsifying salt and intact casein levels on wear behavior, microstructure and shredding performance of process cheese	

11.50 – 12.30 Plenary lecture Gleb Yakubov (Nottingham University, UK) (Chair: Peter Fischer, Bosrandzaal)
Dietary fibre in the gastrointestinal tract: Emergence of health functionality from rheology, physical interactions and biochemical transformations

12.30 – 13.10 Plenary lecture Valeria Garbin (Delft University, the Netherlands)
Designing the stability of aerated food products by bulk and interfacial rheology

13.15 – 14.15 Lunch

14.30 – 22.00 Social Program

DAY THREE

International Symposium of Food Rheology and Structure

Wednesday, 14th of June 2023 – Wageningen Berg

09.00 – 09.40 **Plenary lecture** **Stephan Drusch (Technical University of Berlin, Germany)** (Chair: Gleb Yakubov, Bosrandzaal)
Challenges and opportunities in plant protein based delivery systems

Session E	Biopolymers and Gels	Chair: Gleb Yakubov Bosrandzaal	Session F	Meat Analogues	Chair: Atze-Jan van der Goot Lijsterbeszaal
09.40 – 10.00	Amélie Banc, University of Montpellier, France Start-up shear and natural near-critical gels made of gluten proteins		09.40 – 10.00	Gerard Giménez-Ribes, WUR, the Netherlands Effect of fibre orientation on the shear stress and normal stress responses of meat (analogue)	
10.00 – 10.20	Juliette Behra, Nestlé, Zwitserland Probing carrageenan gel syneresis: from macroscopic to microscopic scale		10.00 – 10.20	Erik Kaunisto, RISE, Sweden Combined FEM modelling and experimental characterization of die melt for prediction of phase separation and associated fibre formation during extrusion of high moisture meat analogues	

10.20 – 10.50 Coffee break

Session E	Biopolymers and Gels	Chair: Theo Blijdenstein Bosrandzaal	Session F	Meat Analogues	Chair: Leonard Sagis Lijsterbeszaal
10.50 – 11.10	Anni Hougaard, Copenhagen University, Denmark Protein-based gels produced by fermentation of faba bean and pea		10.50 – 11.10	Atze-Jan van der Goot, WUR, the Netherlands Towards better understanding of structure formation in extrusion	
11.10 – 11.30	Martina Klost, Technical University of Berlin, Germany Gelation of protein from mealworm (<i>Tenebrio molitor</i>): A study on structural changes and rheological properties		11.10 – 11.30	Auke de Vries, New School Foods, Canada Uni-directional freezing as food structuring tool for meat analogues	
11.30 – 11.50	Agathe Schera, University Laval, Canada Impact of adjunct strains in co-culture with a commercial starter on rheological properties of stirred yogurt		11.30 – 11.50	Jiashu Li, KU leuven, Belgium The interplay between soy proteins and dietary fibre in determining structure formation of plant-based meat analogues produced with high moisture extrusion	
11.50 – 12.10	Bo Yuan, WUR, the Netherlands Effect of pH and calcium addition on the textural properties and temperature sensitivity of heated casein gels		11.50 – 12.10	Gabriela Saavedra, Thermo Fisher Scientific, Germany Influence of oils on plant-based meat analogues: Assessing extrudate's mechanical properties to ensure quality and consumer acceptance	
12.10 – 12.30	Braulio Macias-Rodriguez, Amsterdam University, the Netherlands Double gels made of interpenetrating colloidal networks		12.10 – 12.30	Raisa Rudge, University of Queensland, Australia Legume-based meats with tuneable texture using fermentation techniques	

12.30 – 14.00 Lunch

14.00 – 14.40 Plenary lecture **Theo Blijdenstein (Unilever, the Netherlands)** (Chair: Camilla Terenzi, Bosrandzaal)
Large and small deformation rheology in multi-phase food products

Session E	Biopolymers and Gels	Chair: Camilla Terenzi Bosrandzaal	Session F	Meat Analogues	Chair: Peter Fischer Lijsterbeszaal
14.40 – 15.00	Wenbo Ren, Copenhagen University, Denmark Effect of Ca ²⁺ and pH on thermal gelation behavior of soluble pea protein		14.40 – 15.00	Elise Caron, Ghent University, Belgium Rheological assessment and design of protein-rich inks for the 3D printing of meat analogues	
15.00 – 15.20	Arjen Bot, Unilever, the Netherlands Phase behavior of ternary mixtures		15.00 – 15.20	Miek Schlangen, WUR, the Netherlands Do's and don'ts in tensile testing of meat analogues	

15.20 – 15.50 Coffee break

Session E	Biopolymers and Gels	Chair: Niklas Loren Bosrandzaal	Session F	Meat Analogues	Chair: Erich Windhab Lijsterbeszaal
15.50 – 16.10	Lei Ji, University of California, Davis, USA Manipulating the mechanical and rheological properties of ethylcellulose gels: the role of chemical structure of small molecular weight surfactants		15.50 – 16.10	Katja Garina, Delft University, the Netherlands Structure formation and structure evolution during high moisture extrusion of soy proteins studied by scattering techniques	
16.10 – 16.30	Lara Manzocco, University of Udine, Italy Effect of processing conditions on structure and sorption capability of whey protein aerogels		16.10 – 16.30	Diete Verfaillie, Flanders Research Institute for Agriculture, Belgium The impact of protein denaturation and solubility of soy protein isolates on structure formation during high moisture extrusion	
16.30 – 16.50	Karin Wagner, Technion, Israel The dual Functionality of di-acylglycerides in lipid systems		16.30 – 16.50		

17.00 – 18.30 Poster Session

18.30 Dinner

20.30 - 00.00 Social event

DAY FOUR

International Symposium of Food Rheology and Structure

Thursday, 15th of June 2023 – Wageningen Berg

09.00 – 09.40 **Plenary lecture** **Deniz Gunes (Leuven University, Belgium)** (Chair: Leonard Sagis, Bosrandzaal)
Some microfluidic tools for studying structure and stability in food dispersions

Session G	Effect of Processing	Chair: Leonard Sagis Bosrandzaal	Session A	Colloidal Suspensions	Chair: Elke Scholten Lijsterbeszaal
09.40 – 10.00	Hannah Hartge, Max Planck Institute for Polymer Research, Germany Viscosity in crystallizing agitated sucrose dispersions		09.40 – 10.00	Sarah Schroeder, DIL – German Institute of Food Technologies, Germany Controlling chocolate surface properties and gloss formation potential by the choice of contact/mould material	
10.00 – 10.20	Norbert Raak, Aarhus University, Denmark Shaping the structure of blends from sunflower press cake and whey proteins through heat treatment and fermentation		10.00 – 10.20	Kato Rondou, Ghent University, Belgium Rheology of semi-liquid shortenings in relation to composition, processing and storage temperature	

10.20 – 10.50 Coffee break

Session G	Effect of Processing	Chair: Peter Fischer Bosrandzaal	Session A	Colloidal Suspensions	Chair: Deniz Gunes Lijsterbeszaal
10.50 - 11.10	Theo Outrequin, SIIT, Thailand Effect of the ink rheological properties and printing parameters on the filament spreading during 3D printing of pectin		10.50 - 11.10	Gabriele D’Oria, University of Copenhagen, Denmark Impact of time and applied shear during processing on fluid gels’ rheology and dynamics	
11.10 – 11.30	Yagmur Bugday, Eindhoven University, Netherlands Towards printability predictions of complex food inks: formulation and rheology		11.10 – 11.30	Philipp Fuhrmann, University of Natural Resources, Austria Structure and rheology of oil-continuous capillary suspensions containing water-swellaable cellulose beads and fibres	
11.30 – 11.50	Annegret Jannasch, University of Arkansas, USA Effects of bran pigmentation and parboiling on rheological properties of waxy rice in neutral and acidic environments		11.30 – 11.50	Xiangyu Liu, WUR, the Netherlands Engineering ice cream texture using fat droplets and ice crystals	
11.50 – 12.10			11.50 – 12.10	Costas Nikiforidis, WUR, the Netherlands Effects of rapeseed oleosome membrane composition on curcumin encapsulation and oleosome stability	

12.10 – 12.20 **Closing Ceremony** (Bosrandzaal)

12.30 – 13.30 Lunch

POSTER SESSION

International Symposium of Food Rheology and Structure

Monday, June 12th and Wednesday, June 14th: 17.00 – 18.30: Boomgaardzaal

Session	Colloidal suspensions	
A		
A1	Yun Jeong Kim , Hae In Yong, Min Hyeock Lee, Yun-Sang Choi, Bum-Keun Kim	Improvement of emulsification properties through physicochemical changes of porcine myofibrillar proteins induced by non-thermal physical treatment
A2	Ingrid Contardo , Felipe Cabezas, Sofía Gutiérrez, Javier Enrione	Rheological properties and secondary structure changes of quinoa proteins impacted by the incorporations of anionic polysaccharides at various pH and ionic strength
A3	Laura Dehondt, Hubert Eudier, Jean-Marc Saiter, Maxime Bohin	Impact of temperature on sensorial texture perception and rheological behavior of a lipid-based paste: Plumpy'Nut®
A4	Joanna Kruk, Pawel Ptaszek , Anna Ptaszek	Analysis of non-linear rheological properties of Pickering emulsions stabilised with crystalline starch fractions
A5	Pawel Ptaszek , Daniel Zmudzinski	Surface properties of protein concentrate with faba bean (<i>Vicia faba</i> L. minor)
A6	Kato Rondou , Fien De Witte, Tom Rimaux, Wim Dewinter, Koen Dewettinck, Filip Van Bockstaele	Effect of temperature during production and storage of monoglyceride oleogels
A7	Heidi Liva Pedersen , Hanne Thulstrup, Chih-Cheng (Peter) Chang	NUTRAVA® Citrus Fiber can stabilize oil-in-water emulsions even in the presence of up to 4% Salt and in the presence of Calcium
A8	Duygu Aslan Turker , Mahmut Dogan	Stability, rheology and morphology of O/W emulsion stabilized with PGPR-lecithin
A9	Julia Rodriguez-Garcia , Victoria Norton, Beril Pinarli, Rachael Chuah, Katie Walden and Stella Lignou	Rare sugars as sucrose replacers in biscuits: sweetness and texture perception
A10	Diana Soto-Aguilar , Elke Scholten, Vincenzo Fogliano, Ashkan Madadlou	All-aqueous emulsions stabilized by sporopollenin exine capsules
A11	Sreejani Barua , Thomas A. Vilgis	Physics of Native and Modified Starch: Development of Biophysical Model Systems Explaining the Large Amplitude Oscillatory Shear Behaviour
A12	Nirzar Doshi , Paul Venema, Erik van der Linden, Renko de Vries	Using coacervation to develop functional plant protein-based ingredients from unprocessed leguminous flour mixtures

Session	Rheology Methods	
B		
B1	Dayeon Lee, Sungmin Jeong, Suyong Lee	Utilization of artificial intelligence to predict the rheological properties of hydrocolloids under different processing conditions
B2	Sungmin Jeong, Suyong Lee	Elucidation of starch recrystallization-induced quality changes in pre-cooked rice noodles under different storage conditions
B3	Theresia Heiden-Hecht , Henrich Frielinghaus, Olaf Holderer	Overview of the potential of neutron scattering techniques to understand food systems

B4	Taranvir Singh Bedi , James Spinks, Mark Auty, Gleb Yakubov, Michael George	"No sugar coating it" - Vibrational spectroscopy approaches to locating amorphous sugars in biscuits
B5	Viena Monterde , Frederik Janssen, Ujjwal Verma, Pieter Verboven, Bart Nicolai, Ruth Cardinaels, Arno G.B. Wouters	Understanding the role of water-extractable wheat flour constituents in determining bread loaf volume
B6	Withdrawn	
B7	Fred Gates , Rim Harich, Carole Elleman, Qi He and Tom Curwen	Characterising paste rheology for process optimisation
B8	Kovan Ismael-Mohammed , Mireia Bolivar-Prados, Laura Laguna, Pere Clave	Assessment of the rheological properties of thick puree dishes for patients with oropharyngeal dysphagia
Session C Interfacial Rheology		
C1	Xingfa Ma , Mehdi Habibi, Leonard M.C. Sagis	The stability of plant protein-polysaccharide emulsions: The link to their interfacial properties
C2	Hanne Thulstrup , Heidi Liva Pedersen, Chih-Cheng(Peter) Chang	The impact of use level and activation on the interfacial rheological properties of NUTRAVA® Citrus Fiber at the water-oil interface
Session D Tribology		
D1	Florian Rummel , Martina Tietz, Shona Marsh	Tribological model system testing of cocoa mass samples with different particle size distributions
Session E Biopolymers & Gels		
E1	Buse Gürbüz , Artur J. Martins, Rui C. Pereira, Miguel Azevedo, Lorenzo M. Pastrana, Miguel A. Cerqueira	Rheological characterization of bigels and hydrogels prepared with a natural fibre
E2	Hyun Jin Jung, Imkyung Oh	Thermal, rheological and physicochemical properties of oleogel-based emulsion containing peanut sprout oil
E3	Haewon Song, Imkyung Oh	Production of edible insect oil-oleogels on candelilla wax and application as an animal fat replacer in meat patty
E4	Makarena Jiménez, Ignacia González, Paulo Díaz-Calderón	Influence of nanocellulose with different particle size on pasting and rheological properties of maize starch and waxy-maize starch
E5	Yi Zhang , Ishita Ghosh, Han Liu, Benjamin Simpson	Functional food protein hydrogels generated via biocatalysis
E6	Roland Ramsch , Marjolein van der Eijk, Loes Bevers, Giovanni Brambilla, Gérard Meunier	Multi Speckle-diffusing wave-spectroscopy – A powerful tool for milk gel characterization
E7	Nathan Pougher, Almut Vollmer, Prateek Sharma	Understanding the Mechanism of Cold Gel Formation in Highly Concentrated-Micellar Casein Concentrate (HC-MCC) Solutions: Impact of Calcium Chelation and pH Adjustment

Session F Meat Analogues		
F1	Sam Kuijpers , Martijn Gobes, Thom Huppertz, John van Duynhoven, Camilla Terenzi	Multiscale imaging of structure formation during high-moisture extrusion processing of soy proteins
F2	Martijn Gobes , Sam Kuijpers, John van Duynhoven, Camilla Terenzi, Johannes Hohlbein, Ruud van der Sman	A viscoelastic rheological model to predict the small-scale structure of meat alternatives produced using high moisture protein extrusion
F3	Katja Garina , Ruud den Adel, John van Duynhoven, Wim Bouwman	Structure formation and structure evolution during high moisture extrusion of soy proteins studied by scattering techniques
Session G Effect of Processing		
G1	Florencia Kvapil, Rodolfo Mascheroni, Iturriaga Laura	Structural, textural and quality characteristics of slices of carrot dehydrated using different methods
G2	Cecilia Gulotta, Claudia Quinzio, Cristina Ferrero, Laura Iturriaga	Potato flour as functional component in foods. A Physicochemical, rheological and structural study
G3	Kathleen Hooyberghs , Yeming Bai, Ruth Cardinaels, Paula Moldenaers, Kristof Brijs, Jan A. Delcour	Calcium ion induced changes in rheological and textural properties of potato starch gels and potato mashes
G4	Haruka Aoyama , Kiyoshi Kawai	Effect of freeze-concentrated glass transition on the rheological properties of ice cream
G5	Rinka Omura , Kiyoshi Kawai	Effects of the starch gelatinization and rheological properties of dough on the expansion of steamed cake made from rice flour
G6	Won-Ho Hong and Jiyeon Chun	Textural and microstructural properties of thawed pork by tumbling under vacuum
G7	Ruta Murniece , Sanita Reidzane, Ruta Galoburda, Vitalijs Radenkovs, Dace Klava	The impact of fermented rye and barley scald on structure formation and physical properties of wholegrain dough and bread
G8	Dana Middendorf, Sarah Schroeder, Knut Franke	Flow properties of cocoa butter-based suspensions after ball and roller mill grinding are highly influenced by local surface properties of sucrose particles
G9	Fariba Zad Bagher Seighalani, Benjamin Evan, Donald J. McMahon, Prateek Sharma	Rheological properties of Highly Concentrated- Micellar Casein Concentrate as affected by pH and temperature
Session H Oral Processing and Digestion		
H1	Hanna Lesme , Ben Kew, Anwasha Sarkar, Francesco Sellacci	Relating pea and salivary protein interactions to salivary lubrication and astringency perception
H2	Kohei Ohie , Taiki Yoshida, Yuji Tasaka, Yuichi Murai	Velocity-profiling-based rheometry along the food value chain from production to digestion of complex fluid food
H3	Yifan Zhang , Guido Sala, Elke Scholten, Markus Stieger	How sensory juiciness of plant-based meat analogues and beef patties relates to food and bolus properties
H4	Withdrawn	