

LE MANS, FRANCE
APRIL 6–9, 2008

The 2008 meeting of the Food Colloids' series was organized by Taco Nicolai and his colleagues at the Université du Maine, INRA Nantes and Université d'Angers. The twelfth symposium of its kind focused on "Creating Structure, Delivering Functionality", an area where engineering, perception and, of course, rheology meets colloidal science. The meetings classical orientation toward the complex colloidal structure in food was reflected in all six keynote lectures, 36 talks, and 111 poster presentations.

The opening lecture on Monday was given by Rama Bansil from Boston University focusing on the question "What protects the stomach from digesting itself?" Obviously, not only food seems to be complex but also the mucus layer digesting it and simultaneously protecting the stomach cell walls. The transport of nutrients through the stomach and eventually into the intestine and thereby providing functionality to food systems such as emulsion and other self-assembled structures was addressed in several contributions of the morning session.

Niklas Loren from SIK in Gothenburg/Sweden started the afternoon session on "Structure dynamics in heterogeneous biomaterials" such as phase separating biopolymer mixtures. He described how to utilize several experimental and numerical techniques in an ingenious way to monitor mass transport phenomena in food material with internal structures and interfaces can be monitor and described. Interfacial aspects, sort of hidden in the morning session, now finally fully surfaced in the following oral presentations on surface film rheology, protein-

protein interaction at interfaces including the rheology of such films, and the role of surface active material in the formation of drops, emulsion, and double emulsions. In particular, the contribution by Boris Noskov on the modeling of the aggregation of random coil and globular proteins at surface and interfaces shed some new light on the rheological behavior of such protein layer. The final oral contribution on magnesium retention in emulsion nicely illustrated the structure - functionality frame of the meeting. The following poster session gave enough time to discuss the already introduced topics and provided a good overview on ongoing research threads.

The second day was started by one of the authors on "Directed structuring of complex fluids". The use of water-water or water-oil emulsions to generate non-equilibrium microstructures via a superimposed gelation as rheological modifier in food was discussed from historical as well as colloidal and engineering aspects. A brief outline of microfluidics as upcoming technique was included in a final remark. The following contribution by Cynthia Akkermans unveiled that peptides are building blocks of fibrillar protein aggregates rather than monomeric proteins. This finding could pave the way to assemble protein structures from any peptide and not only from selected proteins as has been done so far. The remaining of the morning session as well as the afternoon session focused on colloidal aspects of gels, the relationship of microstructure and rheology, as well as the static and dynamic properties of proteins at interfaces. For example, a physical approach to describe the

Figure 1 (left):
Cynthia Akkermans giving a talk on protein fibrillation.

Figure 2:
Firoozmand talking.



Conference Report I

aggregation of colloidal systems was introduced by Anna Stradner. Working well for simple, i.e. mostly spherical aggregates such as casein micelles, the model is challenged with complex biopolymer mixtures. After finalizing the afternoon session, most attendees followed the planned visit to the Le Mans racetrack and the medieval city center before the conference dinner provided a congenial ending to the social event.

The last day of the conference started with an overview of "colloidal aspects of sensory perception" by Ton van Vliet. The complex rheology of food systems in the mouth was nicely illustrated by the ensuing contribution of Monique Vingermans. That extrusion processing can have important and useful consequences for the functionality of polysaccharides was discussed by Tim Foster. Proteins and polysaccharides are the main food colloids and their interaction is of utmost importance. This field was reviewed by Christian Sanchez and demonstrated in several talks and numerous posters during the conference.

The afternoon session was started by Reinhard Miller who reviewed the "thermodynamics and rheology of mixed protein-surfactant interfacial layers". The interfacial properties of proteins are intriguing and essential for many food products. Some proteins can give extreme stability to foams and emulsions when adsorbed at the interface, as was shown by Andrew Cox. The relatively recent preoccupation with the health of food products was clear from the numerous contributions in this area. One of the major issues is to reduce the fat content. However, not all fat is bad and certain fatty acids are essential to our health. Yoav Livney showed how the essential fatty acid Omega-3 could be put back into low calorie food and Arjan Bot discussed the quest for healthy fat with the right physical properties for food products.

The next Food Colloids meeting will be organized by the University of Granada and will be held in Granada (Spain) early in the spring of 2010.

PF and Taco Nicolai for AR

Conference Report II

75 Years of Polyethylene: Past Successes and Future Challenges

SCIENCE MUSEUM, LONDON, U.K.

MARCH 27, 2008

The 27th March 2008 was the 75th anniversary of the discovery of polythene. To celebrate this occasion, a group of scientists met at the Science Museum in London. The conference, organised by the authors on behalf of the Macro group of the RSC and SCI, the Polymer Physics Group, and the Science Museum, was entitled "75 Years of Polyethylene: Past Successes and Future Challenges" The aim of the meeting was at least in part to counter the somewhat negative image of polythene which had focused largely on the problems associated with disposal and degradation. This was summed up in an article earlier that week in the independent entitled "Polythene's story: The accidental birth of plastic bags" [1]. In this article Ron Sharp reflected that the anniversary was one no one would be celebrating.

On the basis of this meeting Ron Sharp was a little wide of the mark. The first session was devoted to not only to the discovery and development of polythene but also the future. In the chair was David Oxley who had his own memories of the polythene story, however a fuller overview was provided by Harold Fielding, formally of ICI; he reflected on the way polythene was discovered, the timeliness of the discovery (in particular in view of the vital role of this material as an insulator for cables used in Radar), and the way in which the processes developed. This theme was further developed by John Sale, who had spent many years involved in the marketing of polythene, and reflected on the way the market for polyethylene had developed in the past, and how it might develop in the future, he dis-

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