



# Proteins at Interfaces: Understanding Food Colloidal Stability

Food systems contain numerous different chemical components that can change their interactions and distributions during formulation, processing and storage. To draw up rules to make sense of this complexity, one is compelled to infer that attributes relating to physical properties like rheology and stability can be described in terms of simple combinations of the main ingredients and structural entities (biopolymers, particles, networks, droplets and bubbles).

Proteins are complex surface-active polyelectrolytes with a strong tendency to adsorb and to produce stabilizing structures at oil–water interfaces in oil-in-water emulsions. The interfacial properties and interactions between protein-coated surfaces depends on the kind of protein structure (disordered versus globular) and on the environmental conditions (temperature, pH, ionic strength).

Food colloidal systems also contain other important functional components, notably small-molecule surfactants (emulsifiers) and high-molecular-weight polysaccharides (hydrocolloids). These species can have a wide range of interactions with adsorbed proteins leading to mixed interfaces with various structures. Surfactants have the important property of displacing proteins competitively from fluid interfaces. In the case of food polysaccharides, electrostatic complexation or covalent conjugation with adsorbed food proteins can enhance emulsifying and stabilizing properties, especially under unfavourable solution conditions.

**Speaker:**  
**Professor Eric Dickinson**

**Monday, 23 February 2009**  
**6:30 pm**  
**Tulip Room, Food Haven**  
**Singapore Polytechnic Staff Centre**  
**500 Dover Road, Singapore 139651**  
*\* Enter by Gate 3, Dover Road*

## REGISTRATION

Fee is charged as follows. Registration is to be received by **Friday, 20 Feb 2009**.

Member/Spouse - \$ 14  
Student Member - \$ 8  
Non-Member - \$ 18

**Limited  
to 40  
Places  
Only**

### **For registration and enquiries, please contact**

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Professor Eric Dickinson joined the University of Leeds (UK) as Research Fellow in 1973 and received the award of Rideal Lecturer of the Royal Society of Chemistry's (RSC) Colloid & Interface Science and the Society of Chemical Industry's (SCI) Colloid & Surface Chemistry Groups in 2006. In addition he also received the Highly Cited Author award from the Institute for Scientific Information (ISI) since 1996 to the present day.

Besides having authored or co-authored several books on food colloids between 1982 to 1995, Prof Dickinson also edited many books as well as published hundreds of journal articles on the same subject. A prolific editor for many journals, Prof Dickinson has served as Associate Editor for *Food Hydrocolloids*, Section Editor for the *Journal of Food Science* and Editorial Board Member for *Food Science and Technology International (Japan)* to name a few.

Prof Dickinson is also the Chairman of the International Steering Committee of the biennial European Food Colloid Conferences (1986–present) and has just retired from his position as Professor of Food Colloids at the University of Leeds (UK).