

## Linear shear rheology of aging beta-casein films adsorbing at the air/water interface

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In this work, the viscoelasticity of fragile beta-casein films has been followed using different macro- and microrheological techniques. The modulus of the complex surface viscosity varies with time, allowing for the monitoring of the protein adsorption and annealing. Beta-casein adsorption creates a soft glassy gel at the interface that experiences an aging process.

Macrorheological experiments with multiple probe sizes in addition to microrheological experiments demonstrated the consistency of the surface rheological properties over a broad range of viscosities. Surface pressure measurements were performed to complement the characterization of the processes [1, 2].

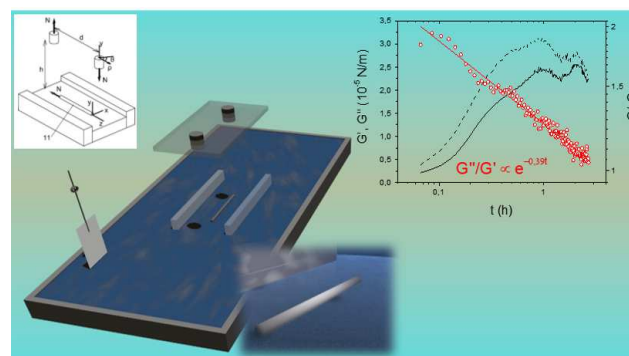


Fig. 1. We have characterized the adsorption of beta-casein by monitoring the change of the dynamic moduli  $G'$  and  $G''$ , by means of active measurements, in which the forced translational motion of a magnetic microwire at the interface is employed to infer layer rheology

[1] F. Martinez-Pedrero, J. Tajuelo, P. Sanchez-Puga, F. Ortega, M. A. Rubio, and R. G. Rubio, Linear shear rheology of aging casein films adsorbing at the air/water interface, *J. Colloid Interface Sci.* **511**, 12-20 (2018).

[2] J. Tajuelo, J. M. Pastor, and M. A. Rubio, A magnetic rod interfacial shear rheometer driven by a mobile magnetic trap, *J. Rheol.* **60**, 1095-1113 (2016).