The Australian Society Of Rheology, Inc.

2020-21 Rheology Lecture Series

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The Australian Society of Rheology is presenting a national series of lectures, which is open to anyone interested in the flow and deformation of matter. The next event in the series will be held online.

Calendar details

Date:	**Tuesday, February 8, 2022**
Time:	6:00 to 7:30 PM (Melbourne, Australia)
Event Registration Link:	http://www.eventbrite.com.au/e/australian-society-of-rheology-seminar-8-february-2022-registration-262225291907

Invited lecture

Prof Emanuela Zaccarelli

(CNR Institute for Complex Systems and Department of Physics, Sapienza University of Rome, Italy)

Presentation Title: Modelling realistic microgels in computer simulations

Abstract: Microgels are soft particles individually made by cross-linked polymer networks which are nowadays widely used as a colloidal model system because of their swelling properties and their responsivity to external control parameters such temperature or pH. In this talk I will briefly illustrate the protocol that we recently developed to synthesize microgels in-silico, providing a realistic description of the particles in bulk and at liquid-liquid interfaces. I will then focus on the calculation of their elastic properties and effective interactions compare the results with the famous Hertzian model. While we find that the validity of such model in bulk is fairly limited, when microgels are adsorbed at interfaces, they effectively behave as 2D elastic disks. Such soft interactions are predicted to show a reentrant liquid-glass-liquid behavior at high densities in a range of experimentally accessible conditions, namely for small and loosely cross-linked microgels.

Speaker's biography

Dr. Emanuela Zaccarelli is a Senior Researcher at the CNR Institute for Complex Systems. She graduated in Physics in 1999 at la Sapienza University and obtained her PhD in Physical Chemistry in 2002 from the University College Dublin, Ireland. She was the first recipient of the Soft Matter Lectureship in 2009 for her important contributions in the field of colloidal gels and glasses. Her research activity on microgels has received funding from the European Research Council with a Consolidator Grant in 2015 She is an expert in theory and simulations of soft matter systems, including colloids, polymers, clays, proteins, particularly focused in the study of effective interactions and collective behavior and dynamics of these systems. She has supervised several Ph.D. students and post-doctoral researchers, also within previous Marie-Sklodowska ITN projects.

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