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▶ "Colloid and Surface Chemistry for
the conservation of Cultural
Heritage"

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10:00 refreshments

10:30 lecture **(pls notice the time)**

Solid State Auditorium
Entrance Floor

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Colloid and Surface Chemistry for the conservation of Cultural Heritage

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Colloid and Surface Science has always been central disciplines in many applicative areas. Fundamental knowledge from colloids and surfaces have been applied across a range of industries as pharmaceutical, detergency, paint, food industries, and in many cases they were the main driving force for their development and success. The Florence group has pioneered the application of soft matter and colloid science to several fields, one of the most exotic is the conservation of cultural heritage. In this field, the same tenets as for the above-mentioned applicative areas hold. Art Conservation poses a formidable challenge to Colloid and Interface Scientists in two aspects: i) the majority of the most performing and environmentally-safe cleaning and consolidation agents for artworks are colloidal systems; ii) the interaction of these agents with the artifact involves an exceptionally complicated range of interfacial interactions, and a correct conservation procedure cannot be safely accomplished without a deep knowledge of the surface properties of the work of art.

In this lecture I will review the most meaningful achievements of my group in this field, focusing on the application of colloidal dispersions of increasing complexity, from nanoparticles to o/w microemulsions, chemical gels, semi-interpenetrating hydrogels containing o/w microemulsions. The last two systems are the most challenging and performing taking advantage from the control of the dynamics of the "gel cage" and of that of the complex fluid embedded into the gel matrix. They have been used on artifacts of the most diverse origins, from Renaissance frescoes to Picasso and Pollock works of art. I will show how chemical and colloidal design can be implemented to meet the requirements of the end-users (restorers) and how precise knowledge of the structure, dynamics and interfacial interactions can contribute to overcome the traditional serendipitous approach used by conservators. Finally, I will try to summarize the main perspectives that this field can disclose for the colloid community.

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