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Università degli studi di Milano-Bicocca**

COLLOQUIUM DI DOTTORATO

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Slow dynamics in soft matter: from colloidal glasses to biological gels.

Soft matter comprises micron or sub-micron-sized objects (solid colloidal particles, liquid emulsion drops, air bubbles, polymers...) suspended in a background solvent. In dilute systems, these objects undergo a characteristic erratic motion, due to the collisions with the solvent molecules, as first reported by British botanist Robert Brown for pollen grains. In more concentrated systems, the interactions between the suspended particles lead to slower, more complex dynamics, a crowding effect qualitatively similar to the slowing down of the microscopic dynamics in dense granular systems or molecular amorphous materials, such as glass formers.

In this seminar, I'll review the slow dynamics of a variety of soft materials, from model systems for the glass transition (dense suspensions of colloidal hard spheres), to more complex systems such as colloidal gels made of attractive particles or gels made of actin filaments, as found in the cytoskeleton of cells. The emphasis will be on the striking similarities found in the behavior of many systems, in spite of their vastly different structure and composition.