

Symposium Amorphous materials: structure, dynamics, properties (SYAM)

jointly organised by
 the Chemical and Polymer Physics Division (CPP),
 the Dynamics and Statistical Physics Division (DY), and
 the Metal and Material Physics Division (MM)

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A wide variety of materials are not in a crystalline state but rather resemble a frozen liquid, in which constituent particles lack long range spatial order. This class of materials includes “hard” glassy metals and polymers, but also “soft” glasses such as suspensions, emulsions, foams, colloidal and granular assemblies. Although these systems differ widely in their length, time, and energy scales, many of their dynamical and rheological properties are universal owing to their disordered nature. These systems are endowed with a hierarchy of relaxation times that are key to understanding their response to external driving. While the yielding transition in the limit of slow athermal driving has hallmarks of critical behavior typical for a dynamical phase transition, new (thermal) effects come into play when glasses are operated closer to their glass transition temperature. This symposium invites experimental, theoretical, and computational explorations of all facets of glassy behavior in amorphous materials. This includes in particular approaches to characterize and predict the slowing down of the dynamics (vitrification) at the glass transition in the bulk and under confinement, the ensuing nonequilibrium relaxation dynamics in the glassy state, and studies of the structural, thermal and mechanical properties of such materials.

Overview of Invited Talks and Sessions

(Lecture hall Audimax 1)

Invited Talks

SYAM 1.1	Tue	13:30–14:00	Audimax 1	Glassy dynamics of vitrimers — •LIESBETH JANSSEN
SYAM 1.2	Tue	14:00–14:30	Audimax 1	Liquid-Liquid Phase Transition in Thin Vapor-Deposited Glass Films — •ZAHRA FAKHRAAI
SYAM 1.3	Tue	14:30–15:00	Audimax 1	Connection between structural properties and atomic motion in ultraviscous metallic liquids close to the dynamical arrest — •BEATRICE RUTA, NICO NEUBER, ISABELLA GALLINO, RALF BUSCH
SYAM 1.4	Tue	15:15–15:45	Audimax 1	Signatures of the spatial extent of plastic events in the yielding transition in amorphous solids — •CELINE RUSCHER, DANIEL KORCHINSKI, JOERG ROTTLER
SYAM 1.5	Tue	15:45–16:15	Audimax 1	Constitutive law for dense agitated granular flows: from theoretical description to rheology experiment — •OLFA D’ANGELO, W. TILL KRANZ

Sessions

SYAM 1.1–1.5	Tue	13:30–16:15	Audimax 1	Amorphous materials: structure, dynamics, properties
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