Call for papers: Topical issue on the Physics of Glasses

The emergence of slow dynamics and the nature of the glass transition endure as theoretical puzzles in condensed matter, but the scope of investigations regarding the nature of glasses has expanded in new directions, driven both by theoretical developments and practical applications. This has resulted in a flowering of investigations regarding the origin of aging, fragility, dynamic heterogeneity, length scales governing slow relaxation, structure and structural change, glass formability, rheology and the response of glasses to mechanical stress. A number of recent developments make this an exciting time for understanding the physics of glasses. New computational methodologies and increased computing power have made it possible to test the fundamental assumptions of well-developed theories. New experimental techniques have been developed for characterizing the structure and dynamics of glasses. Glasses find applications in a wide variety of contexts, and materials engineering of glasses continues to bring issues of fundamental importance to the fore. Significant advances in metallic glass alloy development, for example, have moved these materials to the threshold of application, but understanding their mechanical behavior remains a fundamental challenge. The bridging of ideas that concern practical applications of this kind with the development of fundamental concepts promises to generate exciting developments.

The European Physical Journal E - Soft Matter is publishing a special issue on physics of glasses to collect research reports on some of these exciting investigations. Areas of interest include (but are not limited to): universal aspects of slow dynamics and the glass transition; structure and structural change, dynamical heterogeneity, fragility, jamming, aging, and their interrelationship; the role of growing structural and dynamical length scales in determining slow dynamics; glass formability and suppression of crystallization in multi-component systems; glassy rheology, response of glasses to mechanical stresses near and below the glass transition, plasticity and failure.

We invite you to submit papers for this special issue. Papers should be submitted by March 31st, 2011 to be considered for the special issue, to the Editorial Office of the European Physical Journal E via https://articlestatus.edpsciences.org/is/epje/ (Editorial Office of The European Physical Journal E, Véronique Condé, e-mail: epje@edpsciences.org) and marked clearly for the topical issue on the Physics of Glasses to the attention of Srikanth Sastry (Editor), or Michael Falk or Takeshi Egami (Guest Editors).

We look forward to receiving your submission

Best regards,

Michael Falk, Takeshi Egami, Srikanth Sastry

For further details and information contact the editorial office at epje@edpsciences.org