



Canadian Association
of Physicists

Association canadienne
des physiciens et physiciennes

Contribution ID: 3410

Type: **Invited Speaker / Conférencier(ère) invité(e)**

(I) Recent Advances on the Glass Problem

Tuesday 7 June 2022 10:45 (30 minutes)

Over the last decade, theoretical advances by Giorgio Parisi, Francesco Zamponi and coworkers have provided an exact solution to the glass problem in the limit of infinite spatial dimension. Interestingly, the dynamical arrest this work predicts is consistent with the mode-coupling theory of glasses, and the ensuing entropy crisis at the Kauzmann transition with the random first-order transition scenario. However, what survives of these features and what other processes contribute to the dynamics of three-dimensional glass formers remain largely open questions. In this talk, I present our recent advances toward a microscopic understanding of the finite-dimensional echo of these infinite-dimensional features, and of some of the activated processes that affect the dynamical slowdown of simple yet realistic glass formers.

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Session Classification: T2-7 Fluctuations and Disorder in Condensed Matter (DCMMP) | Fluctuations et désordre en matière condensée (DPMCM)

Track Classification: Symposia Day (Tues. June 7) / Journée de symposiums (mardi, le 7 juin): Symposia Day (DCMMP) - Fluctuations and Disorder in Condensed Matter