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Forum de Physique Statistique @ ENS

Mercredi 19 Mai 2021, 14 :30
LPENS, online(Gotomeeting : https ://www.gotomeet.me/forumphystat)
Domaines : cond-mat.dis-nn

Titre : *Two-level systems in structural glasses*

Orateur : **Francesco Zamponi (LPENS)**

Résumé : *Amorphous solids exhibit quasi-universal low-temperature anomalies whose origin has been ascribed to localized tunneling defects. Using an advanced Monte Carlo procedure, we created in silico glasses spanning from hyperquenched to ultrastable glasses. By means of a multidimensional path-finding protocol, we then located tunneling defects with low enough energy splittings, such that they are active at the temperature below which quantum effects are relevant (around 1K in most experiments). We found that as the stability of a glass increases, its energy landscape as well as the manner in which it is probed tend to deplete the density of tunneling defects, as observed in recent experiments. We also explored the real-space nature of tunneling defects, and found that they are mostly localized to a few atoms, but are occasionally dramatically delocalized. After a general introduction to the problem, I will discuss these results, and some ongoing follow-up work.*