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Is there a Gardner transition in soft glasses? CAMILLE SCALLIET, LUDOVIC BERTHIER, Laboratoire Charles Coulomb, Univ of Montpellier II, FRANCESCO ZAMPONI, Laboratoire de Physique Theorique, ENS Paris — Recent theoretical advances in the mean-field theory of hard-sphere glasses predict the existence of the so-called Gardner transition, an ergodicity breaking transition that takes place deep in the glass phase. In hard-sphere glasses, this transition is crucial to make theoretical predictions for the jamming transition occurring at higher densities. Our goal is to determine if the Gardner transition is also a crucial element to understand the low temperature behaviour of soft glasses. We use two complementary theoretical approaches: a mean-field study of a soft glassy model in the limit of infinite dimensions, combined to a numerical investigation of the transition in a simple three-dimensional soft glass-former. Analytical results confirm the existence of the Gardner transition even in soft glasses. Numerical investigations of three-dimensional soft glasses are in progress, and preliminary results are surprisingly more difficult to interpret than originally expected.

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