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**Avoided criticality and slow relaxation in frustrated two dimensional models** ILYA ESTERLIS, STEVEN KIVELSON, SRINIVAS RAGHU, Stanford University, GILLES TARSUS, LPTMC, CNRS-UMR 7600, Université Pierre et Marie Curie — Frustration, and the associated phenomenon of "avoided criticality" have been proposed as an explanation for the dramatic relaxation slowdown in glass-forming liquids. To test this, we have undertaken a Monte-Carlo study of possibly the simplest such problem, the 2-dimensional XY model with frustration corresponding a small flux, $f$, per plaquette. At $f = 0$, there is a Berezinskii-Kosterlitz-Thouless transition at $T^*$, but at any small but non-zero $f$, this transition is avoided, and replaced (presumably) by a vortex-ordering transition at much lower temperatures. We thus have studied the evolution of the dynamics for small $f$ as the system is cooled from above $T^*$ to below. While we do find strongly temperature dependent slowing of the dynamics as $T$ crosses $T^*$, and that simultaneously the dynamics becomes more complex, neither effect is anywhere nearly as dramatic as the corresponding phenomena in glass-forming liquids. At the very least, this implies that the properties of supercooled liquids must depend on more than the mere existence of an avoided transition.

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