**The emergence of spacetime in causal set theory**[1] STEVEN CAR-
LIP, SAMUEL LOOMIS, Univ of California - Davis — Causal set theory—a discrete
model of spacetime in which causal structure is fundamental—has many attractive
features, but one potentially fatal flaw: while it is easy to construct a causal set that
approximates any given spacetime, the vast majority of causal sets look nothing like
any spacetime at all. Here we show that for certain ranges of coupling constants, one
large class of non-manifoldlike causal sets is exponentially suppressed in the ordinary
(Lorentzian) gravitational path integral. While we cannot yet generalize this result
to other classes, we have promising hints. If a generalization *is* possible, it will mean
that spacetimes can emerge naturally from a simple and attractive discrete setting,

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