

ABSTRACT

If the deep structure of spacetime is that of a causal set (a discrete partial order) then it is natural to postulate that the macroscopic passage of time reflects an underlying stochastic process of sequential birth of new causal set elements. Discrete analogs of general covariance and "Bell" causality then lead (almost uniquely) to a family of dynamical models parameterized by a sequence of non-negative coupling constants t_n . Although these models are still "toys" in the sense that they are not yet quantal, they can produce -- without any "fine tuning" of the t_n -- a cycling universe that naturally resolves some of the large number puzzles of cosmology. Initially of Planck extent, the cycles grow successively bigger and conditions in their initial expansion stages draw successively closer to those we see in our own "big bang".