DNA replication in yeast is stochastic\textsuperscript{1} SCOTT CHENG-HSIN YANG, Simon Fraser University, NICHOLAS RHIND, University of Massachusetts Medical School, JOHN BECHHOEFER, Simon Fraser University — Largely on the basis of a simple — perhaps too simple — analysis of microarray-chip experiments, people have concluded that DNA replication in budding yeast (\textit{S. cerevisiae}) is a nearly deterministic process, in which the position and activation time of each origin of replication is pre-determined. In this talk, we introduce a more quantitative approach to the analysis of microarray data. Applying our new methods to budding yeast, we show that the microarray data imply a picture of replication where the timing of origin activation is highly stochastic. We then propose a physical model (the “multiple-initiator model”) to account for the observed probability distributions of origin-activation timing.

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