

Abstract Submitted
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λ -prophage induction modeled as a cooperative failure mode of lytic repression¹ NICHOLAS CHIA, University of Illinois at Urbana-Champagin, IDO GOLDING, NIGEL GOLDENFELD — We analyze a system-level model for lytic repression of λ -phage in *E. coli* using reliability theory, showing that the repressor circuit comprises 4 redundant components whose failure mode is prophage induction. Our model reflects the specific biochemical mechanisms involved in regulation, including long-range cooperative binding, and its detailed predictions for prophage induction in *E. coli* under ultra-violet radiation are in good agreement with experimental data.

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