

Abstract Submitted  
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**Quantum Darwinism in an Everyday Environment: Huge Redundancy in Scattered Photons**<sup>1</sup> CHARLES RIEDEL, University of California, Santa Barbara, WOJCIECH ZUREK, Los Alamos National Laboratory — We study quantum Darwinism—the redundant recording of information about the preferred states of a decohering system by its environment—for an object illuminated by a blackbody. In the cases of point-source, small disk, and isotropic illumination, we calculate the quantum mutual information between the object and its photon environment. We demonstrate that this realistic model exhibits fast and extensive proliferation of information about the object into the environment and results in redundancies orders of magnitude larger than the exactly soluble models considered to date. We also demonstrate a reduced ability to create records as initial environmental mixedness increases, in agreement with previous studies.

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Charles Riedel  
University of California, Santa Barbara

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