

Abstract Submitted
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Old and new news about single-photon sensitivity in human vision¹ PHILIP NELSON, University of Pennsylvania — It is sometimes said that “our eyes can see single photons,” when in fact the faintest flash of light that can reliably be reported by human subjects is closer to 100 photons. Nevertheless, there is a sense in which the familiar claim is true. Experiments conducted long after the seminal work of Hecht, Shlaer, and Pirenne in two distinct realms, those of human psychophysics and single-cell physiology, now admit a more precise conclusion to be drawn about our visual apparatus. Finding a single framework that accommodates both kinds of result is a nontrivial challenge, and one that sets severe quantitative constraints on any model of dim-light visual processing. I will present one such model and compare it to a recent experiment.

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