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**How zero light intensity can exert a nonzero force on a charged particle** JUSTIN DRESSEL, JEFF TOLLAKSEN, Chapman University, YAKIR AHARONOV, Chapman University, Tel Aviv University — A classical electromagnetic field is deterministic and fully specified by a single temporal boundary condition. In contrast, a quantum electromagnetic field is irreducibly stochastic, such that only its average corresponds to a classical field for large ensembles of measurements. Such a field-average may be further refined by a second temporal boundary condition, which can expose fundamentally different classical fields in the same classical averaging limit. To demonstrate this, we consider an ensemble of coherent laser pulses that interact with identically prepared test charges before being collected at an intensity meter. Isolating only the pulses with zero collected intensity reveals a nonzero average classical force on the charge from those pulses. The charge is affected with no light collected.

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