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Probing the speed of light with radio waves at extremely-low frequencies MARTIN FULLEKRUG, University of Bath — The speed of light, a fundamental physical constant and thought to be independent of frequency, is tested here with naturally occurring radio waves from lightning discharges in the atmosphere at extremely-low frequencies. It is shown that the speed of light in the frequency range 5-50 Hz is known with an accuracy determined by perturbations of the ionospheric reflection height associated with space weather phenomena, which place an upper limit on the photon rest mass $m_\gamma \lesssim 4 \cdot 10^{-52}$ kg to date.

[X] Prefer Oral Session
[ ] Prefer Poster Session

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