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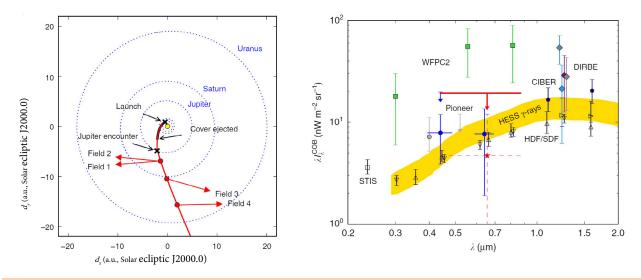
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Measurement of the cosmic optical background using the long range reconnaissance imager on New Horizons

Michael Zemcov^{1,2}, Poppy Immel¹, Chi Nguyen¹, Asantha Cooray³, Carey M. Lisse⁴ & Andrew R. Poppe⁵

The cosmic optical background is an important observable that constrains energy production in stars and more exotic physical processes in the universe, and provides a crucial cosmological benchmark against which to judge theories of structure formation. Measurement of the absolute brightness of this background is complicated by local foregrounds like the Earth's atmosphere and sunlight reflected from local interplanetary dust, and large discrepancies in the inferred brightness of the optical background have resulted. Observations from probes far from the Earth are not affected by these bright foregrounds. Here we analyse the data from the Long Range Reconnaissance Imager (LORRI) instrument on NASA's New Horizons mission acquired during cruise phase outside the orbit of Jupiter, and find a statistical upper limit on the optical background's brightness similar to the integrated light from galaxies. We conclude that a carefully performed survey with LORRI could yield uncertainties comparable to those from galaxy counting measurements.



¹Center for Detectors, School of Physics and Astronomy, Rochester Institute of Technology, 1 Lomb Memorial Drive, Rochester, New York 14623, USA. ²Astrophysics and Space Sciences Section, Jet Propulsion Laboratory (JPL), 4800 Oak Grove Drive, Pasadena, California 91109, USA. ³ Department of Physics & Astronomy, University of California, Irvine, California 92697, USA. ⁴Planetary Exploration Group, Space Department, Johns Hopkins University Applied Physics Laboratory, 11100 Johns Hopkins Road, Laurel, Maryland 20723, USA. ⁵Space Science Laboratory, University of California at Berkeley, Berkeley, California 94720, USA. Correspondence and requests for materials should be addressed to M.Z. (email: zemcov@cfd.rit.edu).