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The Resolved Near-Infrared Extragalactic Background

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In our recent paper (Keenan et al. 2010, accepted to ApJ), we present a current best estimate of the integrated near-infrared (NIR) extragalactic background light (EBL) attributable to resolved galaxies in J, H, and Ks. We derive these new limits by combining our deep wide-field NIR photometry from five widely separated fields with other studies from the literature to create a galaxy counts sample that is highly complete and has good counting statistics out to JHKs ~ 27–28. As part of this effort we present new ultradeep Ks–band galaxy counts from 22 hours of observations with the Multi Object Infrared Camera and Spectrograph (MOIRCS) instrument on the Subaru Telescope. We use this MOIRCS Ks–band mosaic to estimate the total missing flux from sources beyond our detection limits. Our new limits to the NIR EBL
are in basic agreement with, but 10 – 20% higher than previous estimates, bringing them into better agreement with estimates of the total NIR EBL (resolved + unresolved sources) obtained from TeV gamma–ray opacity measurements and recent direct measurements of the total NIR EBL, as well as recent integrated galaxy light models. We examine field to field variations in our photometry to show that the integrated light from galaxies is isotropic to within uncertainties, consistent with the expected large-scale isotropy of the EBL. Our data also allow for a robust estimate of the NIR light from Galactic stars.

Primary author: Mr KEENAN, Ryan (University of Wisconsin, Madison)

Presenter: Mr KEENAN, Ryan (University of Wisconsin, Madison)

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