

# Synergy of the SDSS and the WISE in the Stripe 82: physical properties of 15 million galaxies

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We report the current results from our effort to synergize WISE and SDSS in the 300 square degree Stripe 82 region. Using the SDSS images as the prior, we fit the SDSS-detected objects to the WISE W1/W2 images to obtain consistent optical-to-IR SEDs. The major outcome consists of three catalogs: (1) the "SDSS+WISE" photometric catalog of 13 million SDSS-detected point sources, (2) the "SDSS+WISE" photometric catalog of 15 million galaxies with photometric redshifts, and (3) the catalog of "WISE Optical Dropouts", or "WoDrops", which are those detected in the W1/W2 images but do not have counterparts in the SDSS. We discuss the application of the extragalactic catalogs in the context of Global Stellar Mass Density and Cosmic Star Formation History.