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Title:	Galaxy And Mass Assembly (GAMA): Panchromatic Data Release (far-UV–far-IR) and the low-z energy budget
Authors:	Mahajan, Smriti (/jspui/browse?type=author&value=Mahajan%2C+Smriti)
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Issue Date:	2016
Publisher:	Oxford University Press
Citation:	Monthly Notices of the Royal Astronomical Society, 455(4), pp. 3911-3942
Abstract:	<p>We present the Galaxy And Mass Assembly (GAMA) Panchromatic Data Release (PDR) constituting over 230 deg<sup>2</sup> of imaging with photometry in 21 bands extending from the far-UV to the far-IR. These data complement our spectroscopic campaign of over 300k galaxies, and are compiled from observations with a variety of facilities including: GALaxy Evolution eXplorer, Sloan Digital Sky Survey, Visible and Infrared Telescope for Astronomy (VISTA), Wide-field Infrared Survey Explorer, and Herschel, with the GAMA regions currently being surveyed by VLT Survey Telescope (VST) and scheduled for observations by Australian Square Kilometer Array Pathfinder (ASKAP). These data are processed to a common astrometric solution, from which photometry is derived for ~221 373 galaxies with <math>r &lt; 19.8</math> mag. Online tools are provided to access and download data cutouts, or the full mosaics of the GAMA regions in each band. We focus, in particular, on the reduction and analysis of the VISTA VISTA Kilo-degree INfrared Galaxy data, and compare to earlier data sets (i.e. 2MASS and UKIDSS) before combining the data and examining its integrity. Having derived the 21-band photometric catalogue, we proceed to fit the data using the energy balance code magphys. These measurements are then used to obtain the first fully empirical measurement of the 0.1–500 <math>\mu</math>m energy output of the Universe. Exploring the cosmic spectral energy distribution across three time-intervals (0.3–1.1, 1.1–1.8, and 1.8–2.4 Gyr), we find that the Universe is currently generating <math>(1.5 \pm 0.3) \times 10^{35} \text{ h}70 \text{ W Mpc}^{-3}</math>, down from <math>(2.5 \pm 0.2) \times 10^{35} \text{ h}70 \text{ W Mpc}^{-3}</math> 2.3 Gyr ago. More importantly, we identify significant and smooth evolution in the integrated photon escape fraction at all wavelengths, with the UV escape fraction increasing from 27(18) per cent at <math>z = 0.18</math> in NUV(FUV) to 34(23) per cent at <math>z = 0.06</math>. The GAMA PDR can be found at: <a href="http://gama-psi.icrar.org/">http://gama-psi.icrar.org/</a>.</p>
Description:	Only IISERM authors are available in the record.
URI:	<a href="https://academic.oup.com/mnras/article/455/4/3911/1262746">https://academic.oup.com/mnras/article/455/4/3911/1262746</a> ( <a href="https://academic.oup.com/mnras/article/455/4/3911/1262746">https://academic.oup.com/mnras/article/455/4/3911/1262746</a> ) <a href="http://hdl.handle.net/123456789/2615">http://hdl.handle.net/123456789/2615</a> ( <a href="http://hdl.handle.net/123456789/2615">http://hdl.handle.net/123456789/2615</a> )
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