Title:	Galaxy And Mass Assembly (GAMA): Data Release 4 and the z < 0.1 total and z < 0.08 morphological galaxy stellar mass functions
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Abstract:	In Galaxy And Mass Assembly Data Release 4 (GAMA DR4), we make available our full spectroscopic redshift sample. This includes 248 682 galaxy spectra, and, in combination with earlier surveys, results in 330 542 redshifts across five sky regions covering ∼250 deg2. The redshift density, is the highest available over such a sustained area, has exceptionally high completeness (95 per cent to rKiDS = 19.65 mag), and is well-suited for the study of galaxy mergers, galaxy groups, and the low redshift (z < 0.25) galaxy population. DR4 includes 32 value-added tables or Data Management Units (DMUs) that provide a number of measured and derived data products including GALEX, ESO KiDS, ESO VIKING, WISE, and HerschelSpace Observatory imaging. Within this release, we provide visual morphologies for 15 330 galaxies to z < 0.08, photometric redshift estimates for all 18 million objects to rKiDS ∼ 25 mag, and stellar velocity dispersions for 111 830 galaxies. We conclude by deriving the total galaxy stellar mass function (GSMF) and its sub-division by morphological class (elliptical, compact-bulge and disc, diffuse-bulge and disc, and disc only). This extends our previous measurement of the total GSMF down to 106.75 M⊙h−270 and we find a total stellar mass density of ρ* = (2.97 ± 0.04) × 108 M⊙h70 Mpc−3 or Ω∗=(2.17±0.03)×10−3h−170 . We conclude that at z < 0.1, the Universe has converted 4.9 ± 0.1 per cent of the baryonic mass implied by big bang Nucleosynthesis into stars that are gravitationally bound within the galaxy population.
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