Galaxy Zoo: Classifications for Galaxies in HST Legacy Imaging

Lead Author and other Galaxy Zoo science team

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E-mail: lead.author@university.edu

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ABSTRACT

Data release paper for GZ Hubble

1 INTRODUCTION

2 SAMPLE AND DATA

2.1 Summary of HST Legacy Survey Imaging

AEGIS has1 orbit each (2200 seconds) in F606W (V band) and F814W filter and has been dithered to 0.03 ”/pixel; the imaging covers 710 arcmin^2.

GOODS targeted 2 fields, GOODS-N and GOODS-S, imaging in 4 filters – F435W (B), F606W (V), F775W (i), and F850LP (z). The mean exposure times vary, from 1000 - 2100 seconds. The images have been dithered to a pixel scale of 0.03 ”/pixel and covers at total area of 320 arcmin^2 (160 arcmin^2 per field). The filters that Griffith et al uses for the colored images were F606W and F775W for GOODS-N and F606W and F850LP for GOODS-S.

COSMOS has 1 orbit (2028 seconds) in the F814W (I band) filter and has been dithered to 0.05 ”/pixel; it covers the largest area, 1.8 deg^2.

GEMS has 1 orbit (2160 and 2286 seconds) in the F606W and F850LP filters, with a pixel scale of 0.03 ”/pixel; it covers 800 arcmin^2

3 REDSHIFT DEPENDENT CLASSIFICATION BIAS

We can't do what we did in Bamford et al. (2009) for the original GZ or Willett et al. (2013) for GZ2 because these both depended on the assumption of no redshift bias. In the GZH samples the redshift range is so large that we expect to find redshift evolution of the types and morphologies of galaxies which are seen.

So we made images of the same galaxy at a variety of redshifts using input images from the SDSS (cite the SDSS) and the FERENGI code (cite Ferengi).

3.1 Selection of Input Galaxies

We select 288 different galaxies in SDSS imaging to run through the FERENGI code.

The selection spanned a variety of galaxy morphologies (as indicated by GZ2 classifications) and surface brightnesses, and also picked ideal something for different target redshifts in HST imaging.

4 SUMMARY

Table 1. Summary of FERENGI parameters

Starting redshift	$N_{z\text{bins}}$	$N_{\text{evolution}}$	$N_{\text{perinputgalaxy}}$	N_{total}
0.3	8	7	56	4031
0.5	6	4	24	1728
0.8	3	3	9	648
1.0	1	3	3	216

New Mexico State Uni- versity, Ohio State University, University of Pittsburgh, University of Portsmouth, Princeton University, the United States Naval Observatory and the University of Washington.

REFERENCES

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