J/A+A/581/A10 VEGAS: A VST Early-type GAlaxy Survey (Capaccioli+, 2015)

VEGAS: A VST Early-type GAlaxy Survey.
I. Presentation, wide-field surface photometry, and substructures in NGC 4472.
Capaccioli M., Spavone M., Grado A., Iodice E., Limatola L.,
Napolitano N.R., Cantiello M., Paolillo M., Romanowsky A.J., Forbes D.A.,
Puzia T.H., Raimondo G., Schipani P.
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Abstract:
We present the VST Early-type GAlaxy Survey (VEGAS), which is designed to obtain deep multiband photometry in g, r, i, of about one hundred nearby galaxies down to 27.3, 26.8, and 26mag/arcsec^2 respectively, using the ESO facility VST/OmegaCAM. The goals of the survey are 1) to map the light distribution up to ten effective radii, r_e; 2) to trace color gradients and surface brightness fluctuation gradients out to a few r_e for stellar population characterization; and 3) to obtain a full census of the satellite systems (globular clusters and dwarf galaxies) out to 20% of the galaxy virial radius. The external regions of galaxies retain signatures of the formation and evolution mechanisms that shaped them, and the study of nearby objects enables a detailed analysis of their morphology and interaction features. To clarify the complex variety of formation mechanisms of early-type galaxies (ETGs), wide and deep photometry is the primary observational step, which at the moment has been pursued with only a few dedicated programs. The VEGAS survey has been designated to provide these data for a volume-limited sample with exceptional image quality. In this commissioning photometric paper we illustrate the capabilities of the survey using g- and i-band VST/OmegaCAM images of the nearby galaxy NGC 4472 and of smaller ETGs in the surrounding field. Our surface brightness profiles reach rather faint levels and agree excellently well with previous literature. Genuine new results concern the detection of an intracluster light tail in NGC 4472 and of various substructures at increasing scales. We have also produced extended (g-i) color profiles. The VST/OmegaCAM data that we acquire in the context of the VEGAS survey provide a detailed view of substructures in the optical emission from extended galaxies, which can be as faint as a hundred times below the sky level.

Description:
The VST Elliptical GAlaxies Survey (VEGAS) is a deep multiband (g,r,i) imaging survey of early-type galaxies in the southern hemisphere carried out with VST at the ESO Cerro Paranal Observatory (Chile). The large field of view (FOV) of the OmegaCAM mounted on VST (one square degree matched by pixels 0.21-arcsec wide), together with its high efficiency and spatial resolution (typically better than 1-arcsec; Kuijken, 2011Msngr.146....8K) allows us to map with a reasonable integration time the surface brightness of a galaxy out to isophotes encircling about 95% of the total light. Observations started in October 2011 (ESO Period 88), and since then, the survey has acquired exposures for about 20 bright galaxies (and for a wealth of companion objects in the field), for a totality of ~80h (up to Period 93).

File Summary:

FileName	Lrecl	Records	Explanations
ReadMe	80	.	This file
tablec1.dat	106	210	The VEGAS sample

Byte-by-byte Description of file: tablec1.dat

Bytes	Format	Units	Label	Explanations
1- 10	A10	---	Name	Galaxy name
12- 21	F10.7	deg	RAdeg	Right ascension (J2000)
23- 33	F11.7	deg	DEdeg	Declination (J2000)
35- 38	A4	---	MType	Morphological type
40- 43	F4.1	---	T-type	Morphological type code
45- 50	F6.2	deg	PA	?=-9.99 Position angle
52- 57	F6.3	mag/arcsec+2	SuBr	?=-9.999 Mean effective surface brightness
60- 65	F6.3	mag	Bmag	Total B magnitude
67- 71	F5.3	mag	B-V	?=- Total B-V colour index
73- 78	F6.2	km/s	sigma	?=- Central velocity dispersion
80- 85	F6.1	km/s	HRV	Mean heliocentric radial velocity (cz)
87- 91	F5.3	mag	AB	Galactic extinction in B-band
93- 98	F6.3	mag	Bmagc	Total B-magnitude corrected for extinction
100-106	F7.3	mag	BMAG	Absolute B-band magnitude

History:
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(End) Patricia Vannier [CDS] 04-Nov-2015

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