The Canarias Einstein Ring:
a Newly Discovered Optical Einstein Ring

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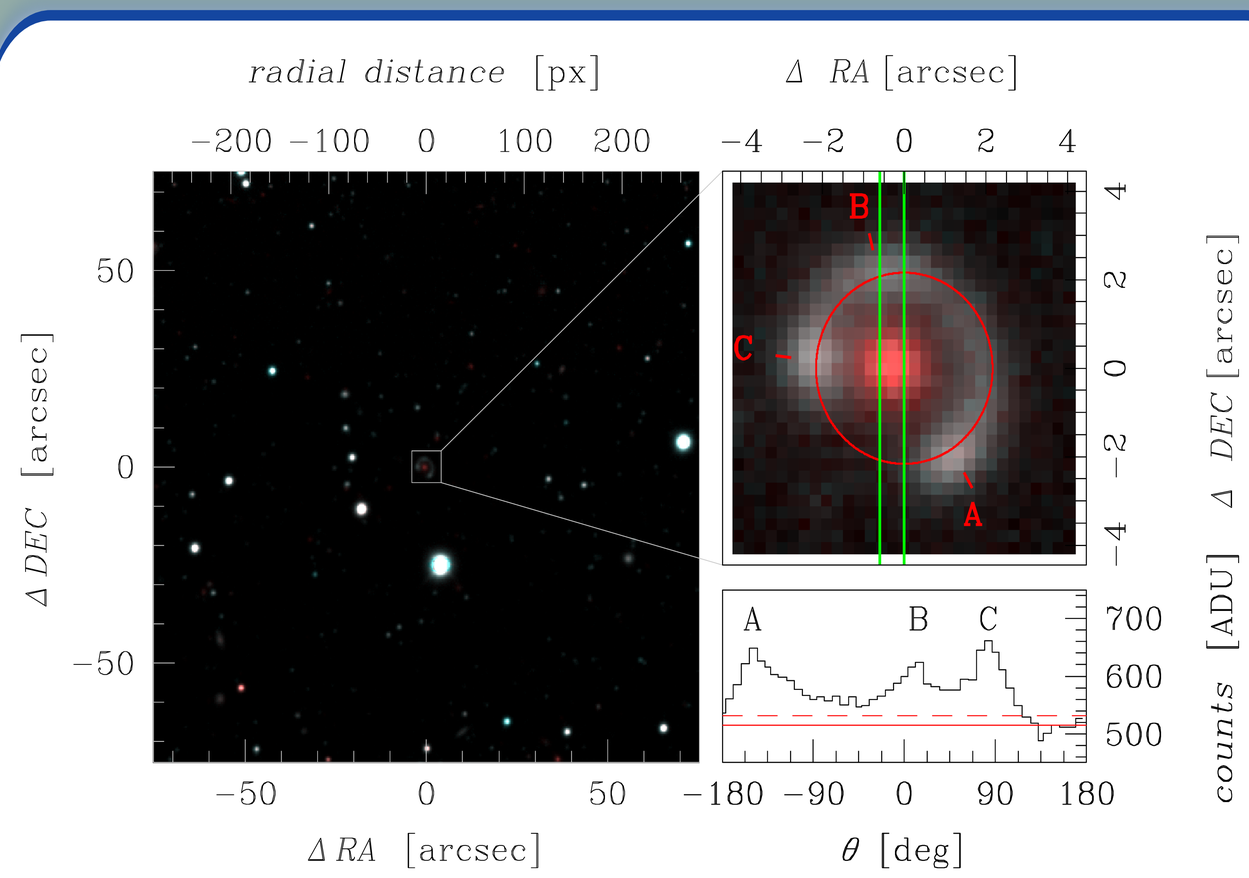
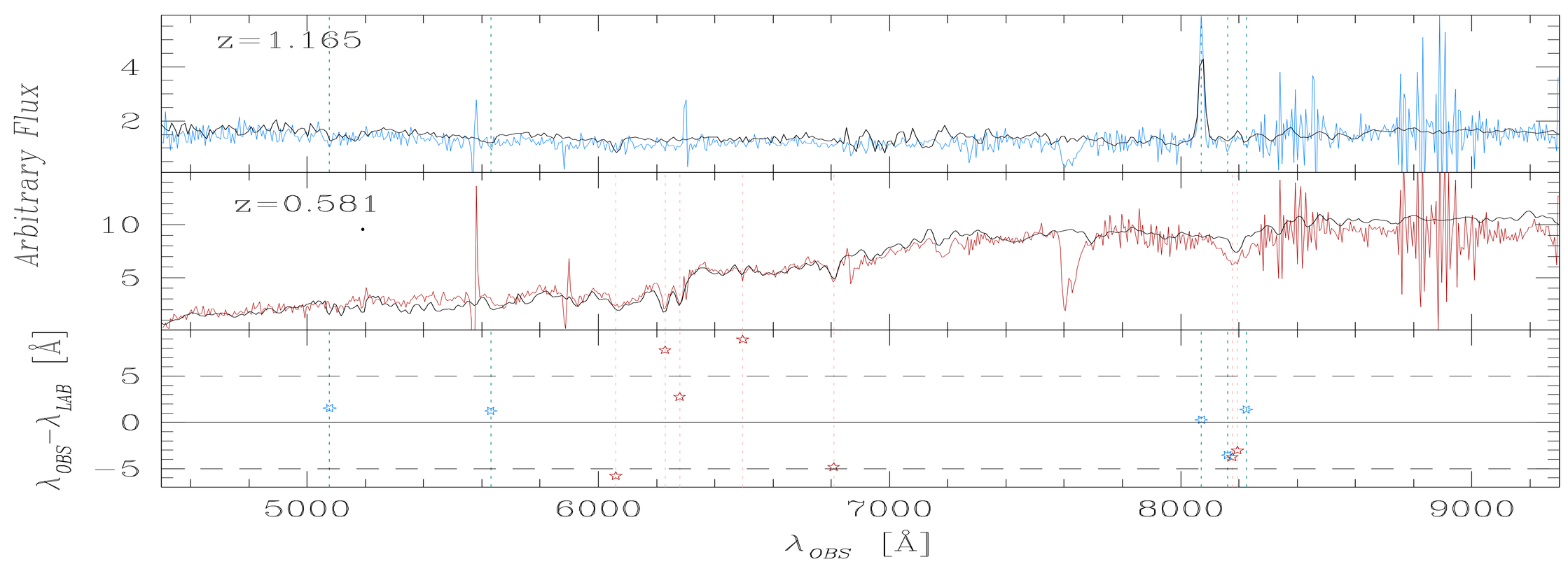
Introduction

We report the discovery of an optical Einstein Ring in the Sculptor constellation, IAC J010127-334319, in the vicinity of the Sculptor Dwarf Spheroidal Galaxy.
It is an almost complete ring (∼ 300◦) with a diameter of ∼ 4.5 arcsec. The discovery was made serendipitously from inspecting Dark Energy Camera (DECam) archive imaging data. Confirmation of the object nature has been obtained by deriving spectroscopic redshifts for both components, lens and source, from observations at the 10.4 m Gran Telescopio CANARIAS (GTC) with the spectrograph OSIRIS. The lens, a massive early-type galaxy, has a redshift of z = 0.581 while the source is a starburst galaxy.with redshift of z = 1.165.
The total enclosed mass that produces the lensing effect has been estimated to be M_{tot}= (1.86 ± 0.23) · 10^{12} $M_{\odot}$.



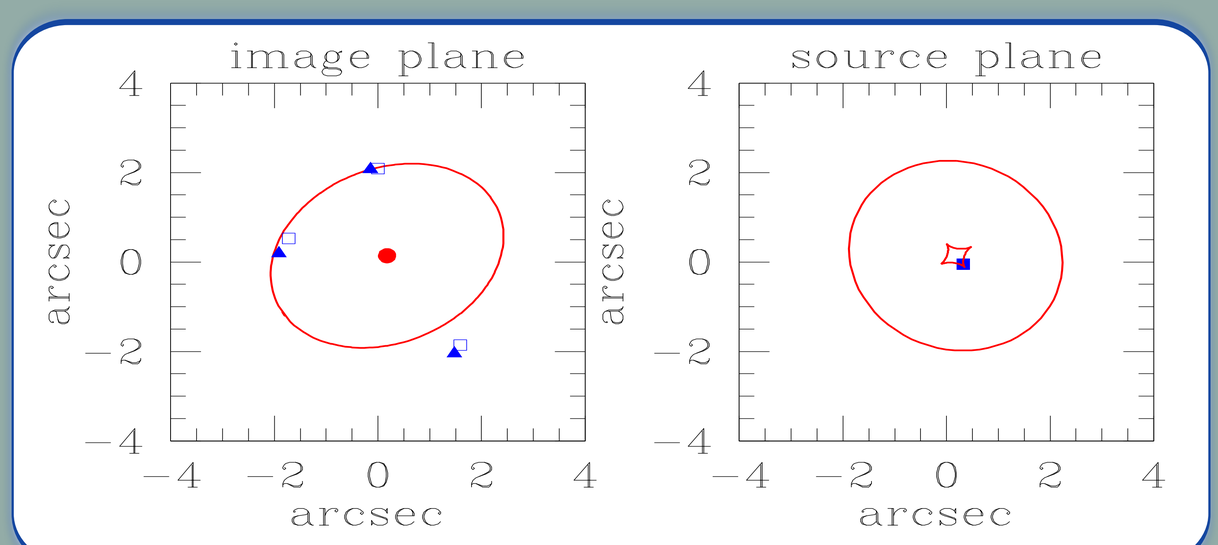
The Spectra



Parameters:

Lens	
Right ascension(J2000):	$01^h01^m27.83^s$
Declination(J2000):	$-33°43'19.68''$
Redshift:	0.581 ± 0.001
Surface brightness Lens (g,r) [mag arcsec^{-2}]:	25.2, 22.2
Apparent magnitude (g,r)	23.61, 21.48
Absolute magnitude (g,r)	−21.05, −23.18

Ring	
Redshift:	1.165 ± 0.001
Einstein radius:	$2.16'' \pm 0.13$
Enclosed mass [10^{12} $M_{\odot}$]:	1.86 ± 0.23
Surface brightness A (g,r) [mag arcsec^{-2}]:	23.7, 22.9
Surface brightness B (g,r) [mag arcsec^{-2}]:	23.9, 23.2
Surface brightness C (g,r) [mag arcsec^{-2}]:	23.7, 23.0
Apparent magnitude (g,r)	20.94, 20.12



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