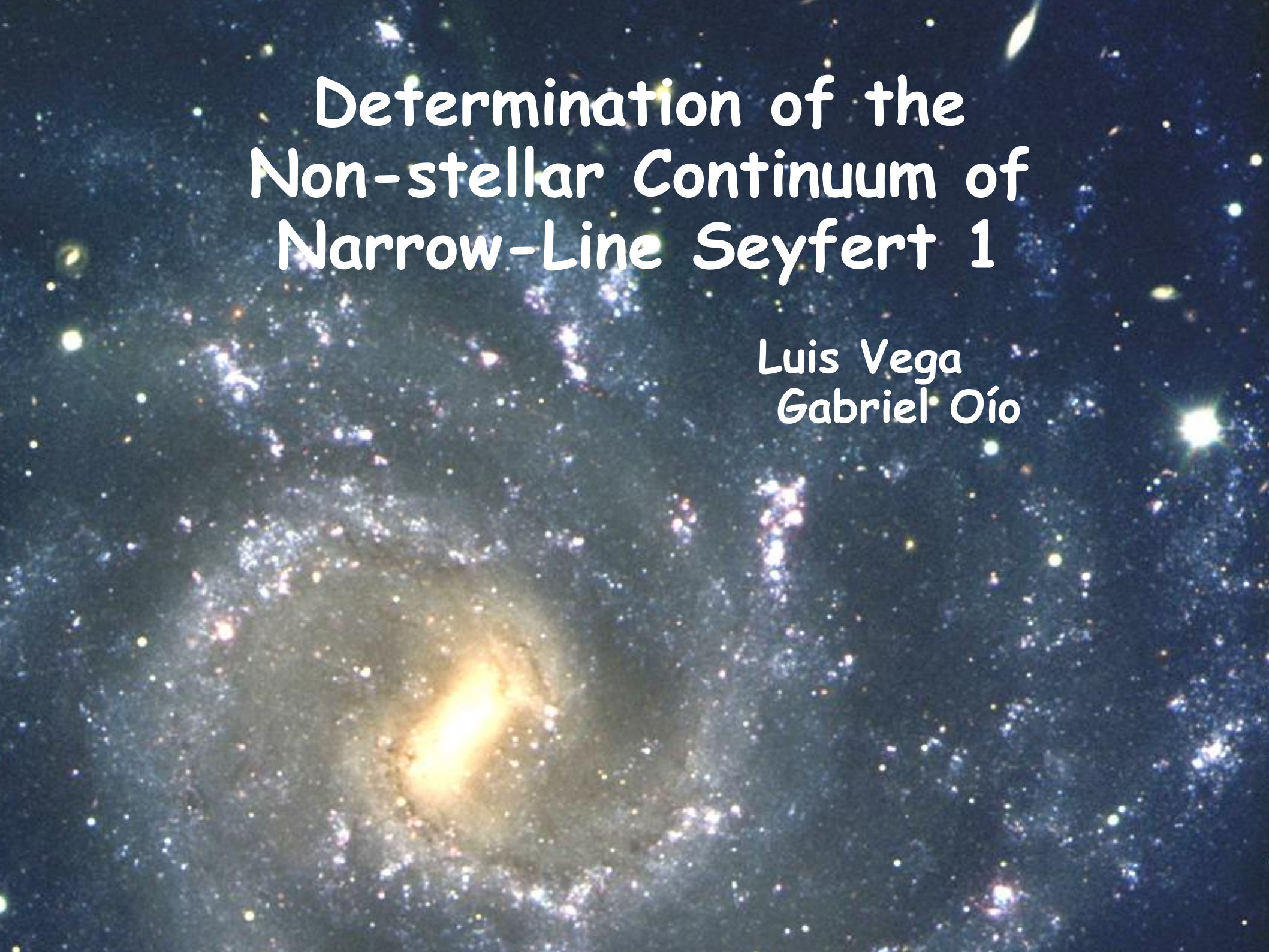
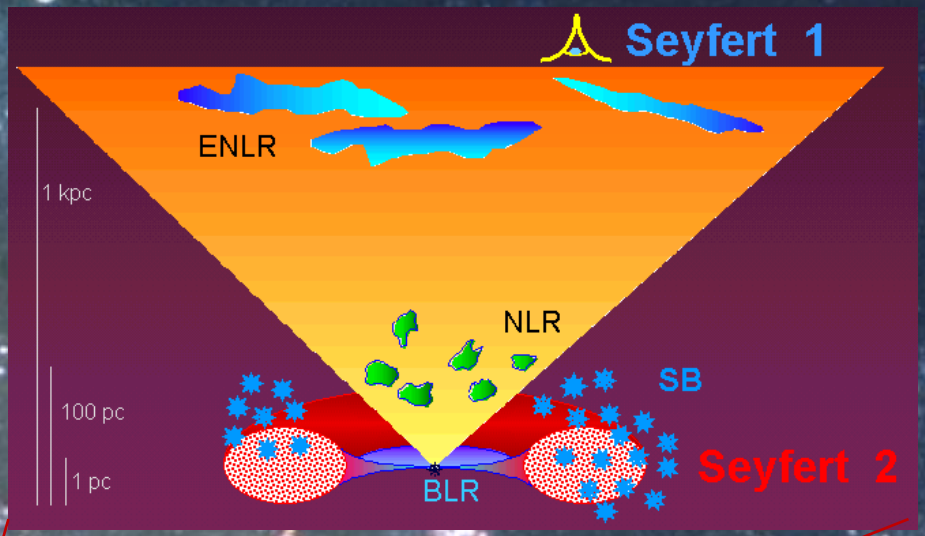


Determination of the Non-stellar Continuum of Narrow-Line Seyfert 1

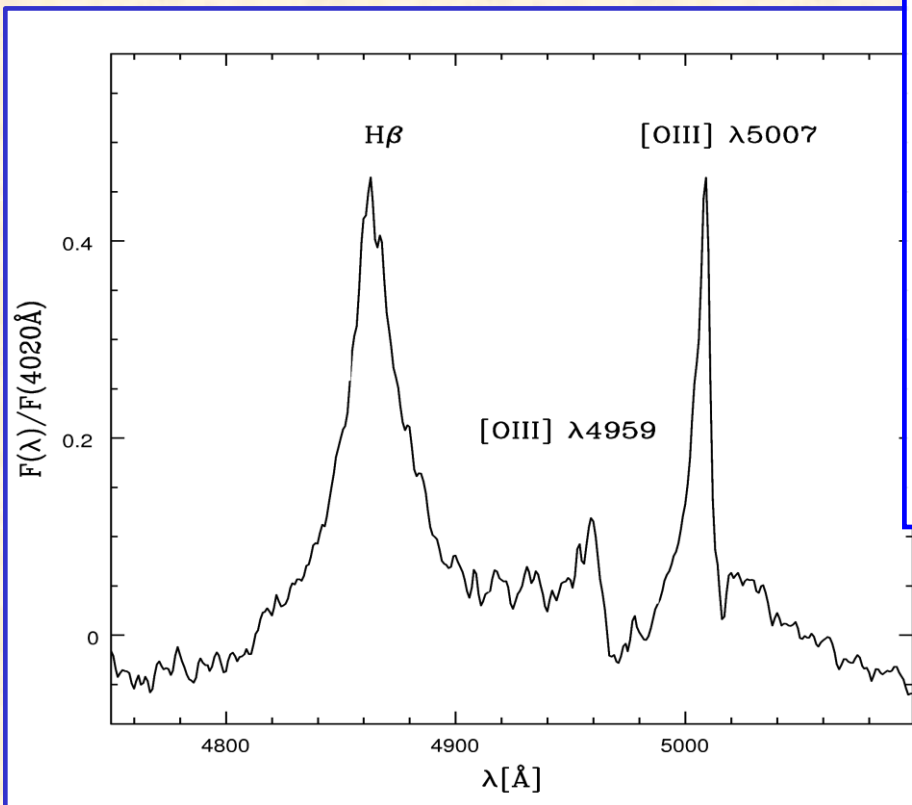
Luis Vega
Gabriel Oío

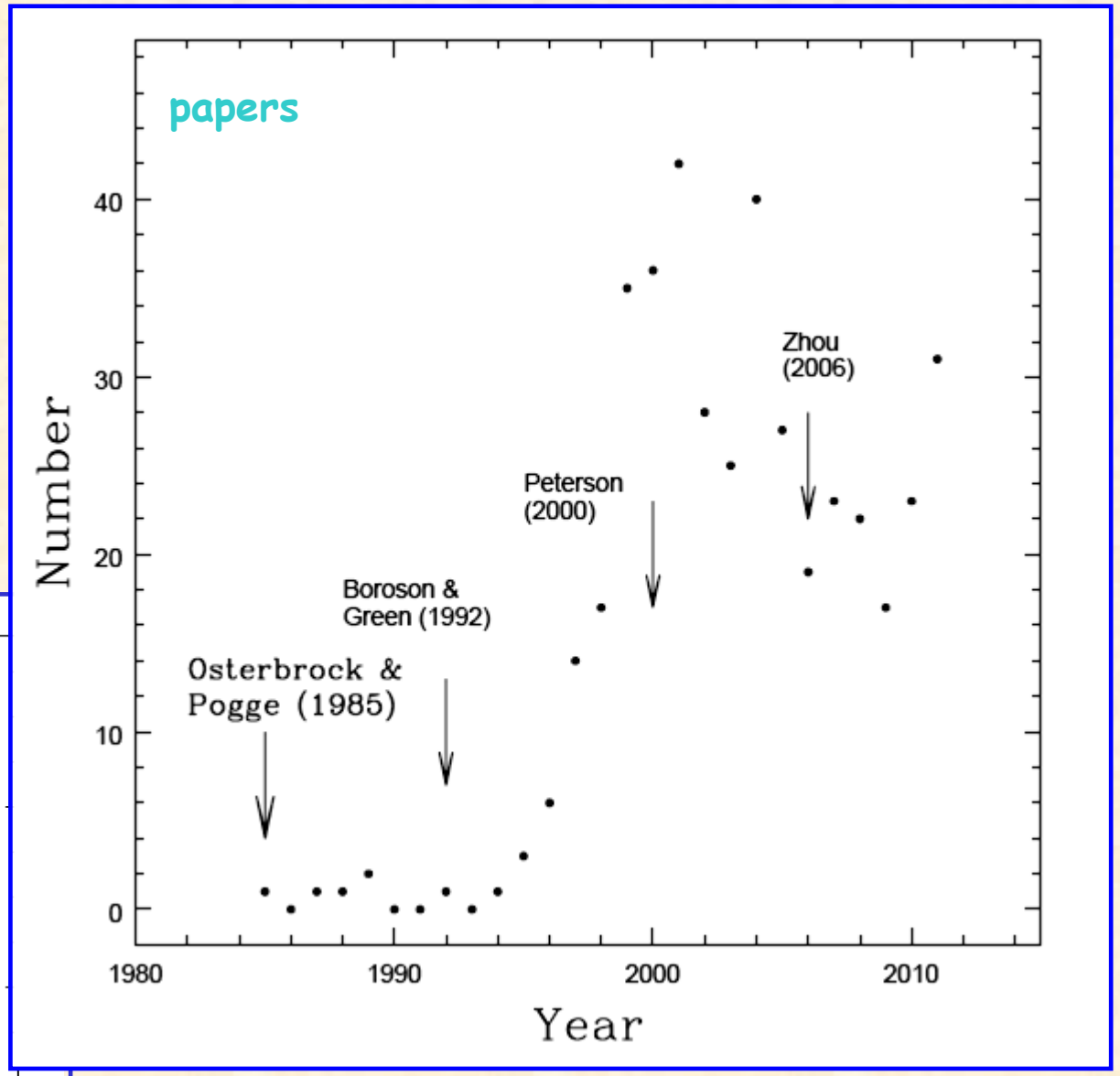

Seyfert 1
ENLR
1 kpc
NLR
SB
100 pc
1 pc
BLR
Seyfert 2

What are these "Narrow Line Seyfert 1" ?

Classical Definition:
(Osterbrock & Pogge, 1985; Goodrich, 1989)

FWHM Hβ < 2000km/s
[OIII]λ5007/Hβtot < 3





"Overall, these narrow-line Seyfert 1 galaxies show a wide variety of deviations from the properties of typical Seyfert 1 objects" - Osterbrock & Pogge (1985)

Sample of NLS1s

Zhou et al (2006) selected spectra from SDSS DR3 marked as QSO or galaxies.

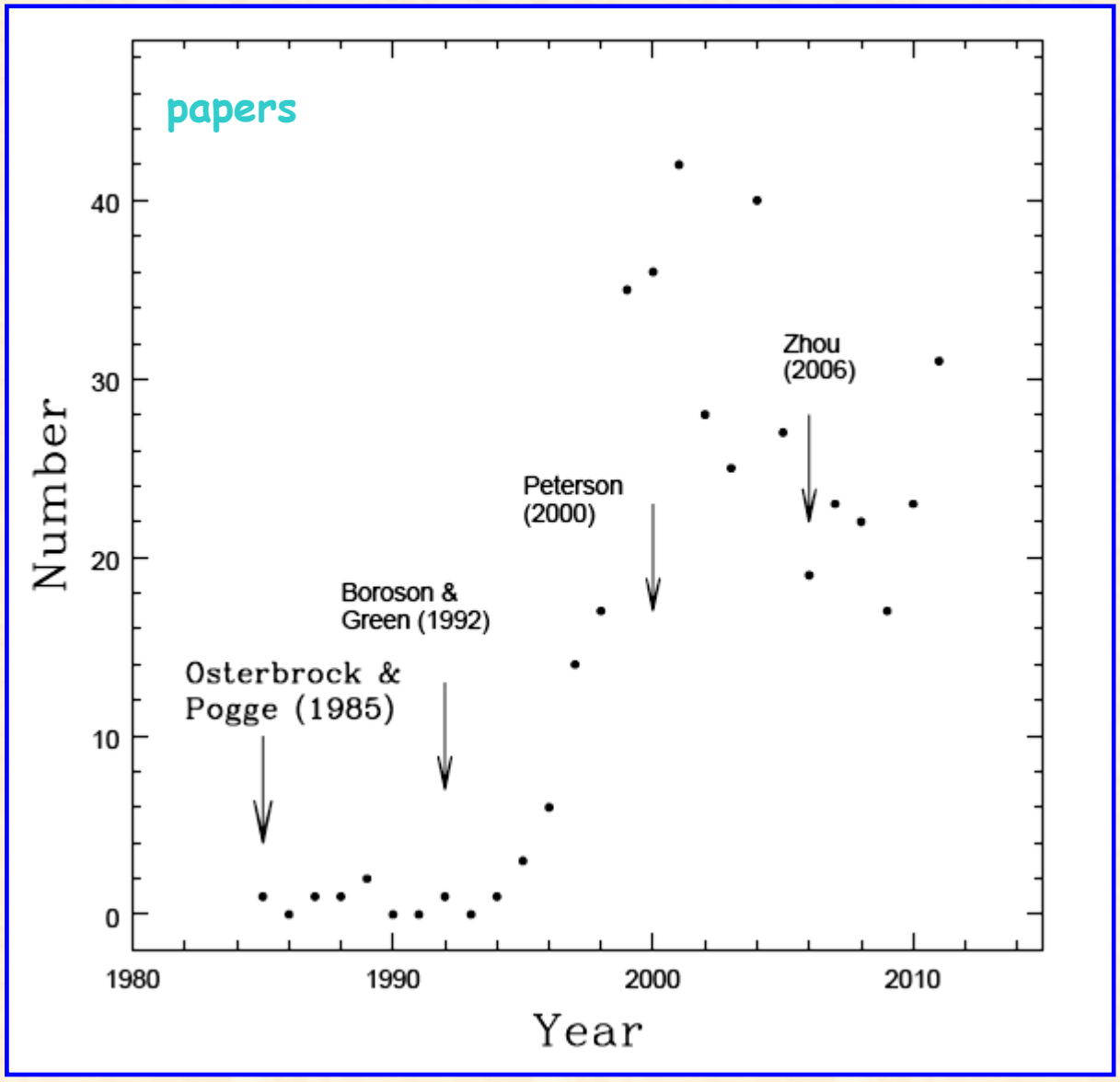
From these, they took only those objects with z < 0.8, to have [OIII]λ5007 and Hβ (SDSS ~ 3800-9200Å) and applied the criteria:

- Broad Hβ
- FWHM HβBroad < 2000 km/s

(They didn't use [OIII]/Hβ<3)

→ Zhou's list:

2011 NLS1s



Questions

- How is the non-stellar continuum in NLS1s ?

- Is there any relationship between the innermost regions of the active nuclei and their host galaxies ?

- What is the stellar content of their bulges ?

- How are the host galaxy properties related to central activity ?

- How is the emission in other wavelengths ? X-ray, UV, IR, mm ?

- Is there NLS1s beyond z = 0.8 ?

-AGN phenomenon is a transient characteristic of a given galaxy. What is the role of NLS1s in this scenario ?

Question

- How is the non-stellar continuum in NLS1s ?

Title: A Comprehensive Study of 2000 Narrow Line Seyfert 1 Galaxies from the Sloan Digital Sky Survey. I. The Sample

Authors: Zhou, Hongyan; Wang, Tinggui; Yuan, Weimin; Lu, Honglin; Dong, Xiaobo; Wang, Junxian; Lu, Youjun

Affiliation: AA(Center for Astrophysics, University of Science and Technology of China, Hefei, Anhui, China; National Astronomical Observatoires/Yunnan Observatory, Chinese Academy of Sciences, Kunming, Yunnan, P.O. Box 110, China. mtzhou@ustc.edu.cn), AB(Center for Astrophysics, University of Science and Technology of China, Hefei, Anhui, China; Joint Institute of Galaxies and Cosmology, SHAO and USTC. mtzhou@ustc.edu.cn), AC(Joint Institute of Galaxies and Cosmology, SHAO and USTC.), AD(Center for Astrophysics, University of Science and Technology of China, Hefei, Anhui, China; National Astronomical Observatoires/Yunnan Observatory, Chinese Academy of Sciences, Kunming, Yunnan, P.O. Box 110, China. mtzhou@ustc.edu.cn), AE(Center for Astrophysics, University of Science and Technology of China, Hefei, Anhui, China; National Astronomical Observatoires/Yunnan Observatory, Chinese Academy of Sciences, Kunming, Yunnan, P.O. Box 110, China. mtzhou@ustc.edu.cn), AF(Center for Astrophysics, University of Science and Technology of China, Hefei, Anhui, China; National Astronomical Observatoires/Yunnan Observatory, Chinese Academy of Sciences, Kunming, Yunnan, P.O. Box 110, China. mtzhou@ustc.edu.cn), AG(Center for Astrophysics, University of Science and Technology of China, Hefei, Anhui, China mtzhou@ustc.edu.cn)

Publication: The Astrophysical Journal Supplement Series, Volume 166, Issue 1, pp. 128-153. (ApJS Homepage)

Publication Date: 09/2006

Origin: UCP

Astronomy Keywords: Galaxies: Active, Galaxies: Seyfert

DOI: 10.1086/504869

· Find Similar Abstracts (with default settings below)
· Electronic Refereed Journal Article (HTML)
· Full Refereed Journal Article (PDF/Postscript)
· arXiv e-print (arXiv:astro-ph/0603759)
· References in the article
· Citations to the Article (104) (Citation History)
· Refereed Citations to the Article
· SIMBAD Objects (6)
· NED Objects (2011)
· Also-Read Articles (Reads History)
·
· Translate This Page

Title: A Comprehensive Study of 2000 Narrow Line Seyfert 1 Galaxies from the Sloan Digital Sky Survey. I. The Sample

Authors: Zhou, Hongyan; Wang, Tinggui; Yuan, Weimin; Lu, Honglin; Dong, Xiaobo; Wang, Junxian; Lu, Youjun

Affiliation: AA(Center for Astrophysics, University of Science and Technology of China, Hefei, Anhui, China; National Astronomical Observatories/Yunnan Observatory, Chinese Academy of Sciences, Kunming, Yunnan, PO Box 110, China, mtzhou@ustc.edu.cn) AB(Center

Publicatio
Publicatio
Origin:
Astronomy
DOI:

Title: A Comprehensive Study of 2000 Narrow Line Seyfert 1 Galaxies from the Sloan Digital Sky Survey. I. The Sample

Authors: Zhou, Hongyan; Wang, Tinggui; Yuan, Weimin; Lu, Honglin; Dong, Xiaobo; Wang, Junxian; Lu, Youjun

Affiliation: AA(Center for Astrophysics, University of Science and Technology of China, Hefei, Anhui, China; National Astronomical Observatories/Yunnan Observatory, Chinese Academy of Sciences, Kunming, Yunnan, P.O. Box 110, China, mtzhou@ustc.edu.cn) AB(Center

Publicatio
Publicatio
Origin:
Astronomy
DOI:

NASA/IPAC EXTRAGALACTIC DATABASE

Date and Time of the Query: 2013-05-31 T11:27:20 PDT

Help | Comment | NED Home

You have selected the following parameters to search on:

Velocity(km/s): Unconstrained
Include ANY Object Type:
Exclude ANY Object Type:
Parameters for Distances and Cosmology: H_o= 73.0; Ω_{matter} = 0.27; Ω_{vacuum} = 0.73;
Derived Quantities use a Redshift corrected to a Reference Frame defined by the 3K CMB

NED results for object(s) in publication "2006ApJS..166..128Z"

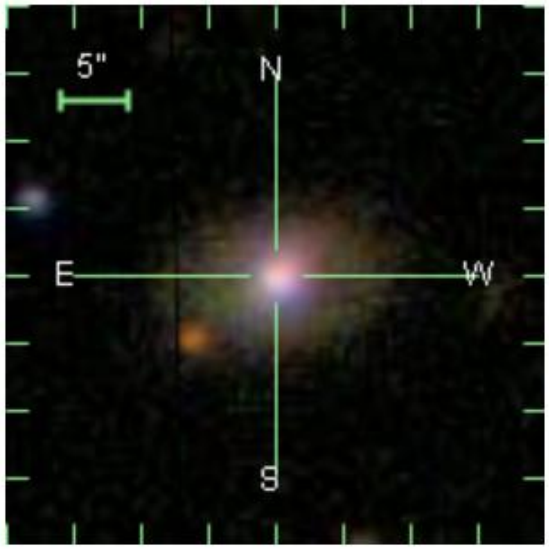
2011 objects found in NED. Skyplot(first 100)

SOURCE LIST

Object list is sorted on RA or Longitude

Row No.	Object Name (* => Essential Note)	EquJ2000.0 RA	DEC	Object Type	Velocity/Redshift km/s	z	Qual	Mag./ Filter	Separ. arcmin	Number of Refs	Notes	Phot	Posn	Vel/z	Diam	Assoc	Images	Spectra	Row No.
1	SDSS J000011.41+145545.6	00h00m11.4s	+14d55m46s	QSO	>30000	0.460127		19.4g	...	9	0	28	2	6	8	0	Retrieve	Retrieve	1
2	SDSS J000109.12-004121.6	00h01m09.1s	-00d41m22s	QSO	>30000	0.417204		19.1g	...	18	0	44	2	11	8	0	Retrieve	Retrieve	2
3	SDSS J000154.27+000732.4	00h01m54.3s	+00d07m32s	QSO	>30000	0.139595		18.8g	...	7	0	45	2	6	8	0	Retrieve	Retrieve	3
4	SDSS J000208.83-001742.5	00h02m08.8s	-00d17m43s	QSO	>30000	0.653556		18.9g	...	19	0	39	2	14	8	0	Retrieve	Retrieve	4
5	SDSS J000257.36-090015.0	00h02m57.4s	-09d00m15s	QSO	>30000	0.517441		19.5g	...	10	0	37	2	7	8	0	Retrieve	Retrieve	5
6	SDSS J000410.80-104527.1	00h04m10.8s	-10d45m27s	QSO	>30000	0.239933		17.9g	...	14	0	33	2	8	8	0	Retrieve	Retrieve	6
7	LBQS 0006+0015	00h08m34.7s	+00d31m56s	QSO	>30000	0.263790		17.6g	...	32	0	44	3	11	8	1	Retrieve	Retrieve	7
8	SDSS J000913.79-101246.7	00h09m13.8s	-10d12m47s	QSO	>30000	0.615184		19.3g	...	14	0	32	2	9	8	0	Retrieve	Retrieve	8
9	SDSS J001010.03+005126.6	00h10m10.0s	+00d51m27s	QSO	>30000	0.386991		19.2g	...	14	0	43	2	9	8	0	Retrieve	Retrieve	9
10	SDSS J001100.31+134812.2	00h11m00.3s	+13d48m12s	QSO	>30000	0.686475		18.9g	...	11	0	28	2	7	8	0	Retrieve	Retrieve	10
11	SDSS J001104.84-092357.8	00h11m04.8s	-09d23m58s	QSO	>30000	0.697036		18.6g	...	14	0	33	2	9	8	0	Retrieve	Retrieve	11
12	2MASX J00113723+1442016	00h11m37.2s	+14d42m01s	G	>30000	0.131834		17.6g	...	6	0	54	3	2	10	1	Retrieve	Retrieve	12
13	SDSS J001416.91+145038.4	00h14m16.9s	+14d50m38s	QSO	>30000	0.206182		18.4g	...	4	0	41	2	2	8	0	Retrieve	Retrieve	13

SecTarget



u	g	r	i	z
17.46	16.82	16.36	15.91	15.77

err_u	err_g	err_r	err_i	err_z
0.01	0.00	0.00	0.00	0.01

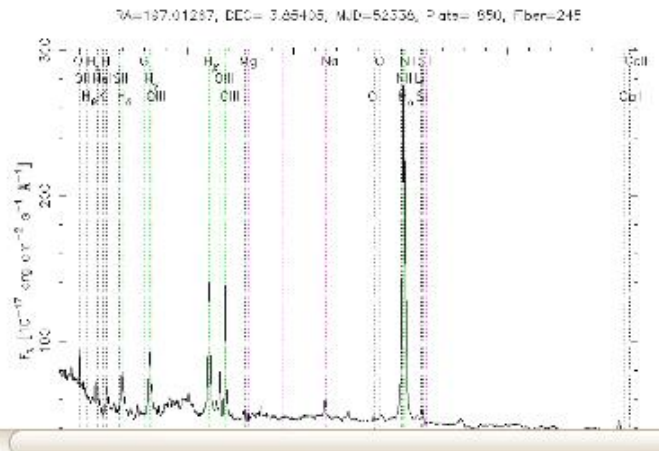
run	rerun	camcol	field	obj	rowc	colc
2190	40	1	100	131	1406.0	212.9

fiberMag_r	petroMag_r	devMag_r	expMag_r	psfMag_r	modelMag_r
17.36	16.34	16.36	16.65	17.19	16.36

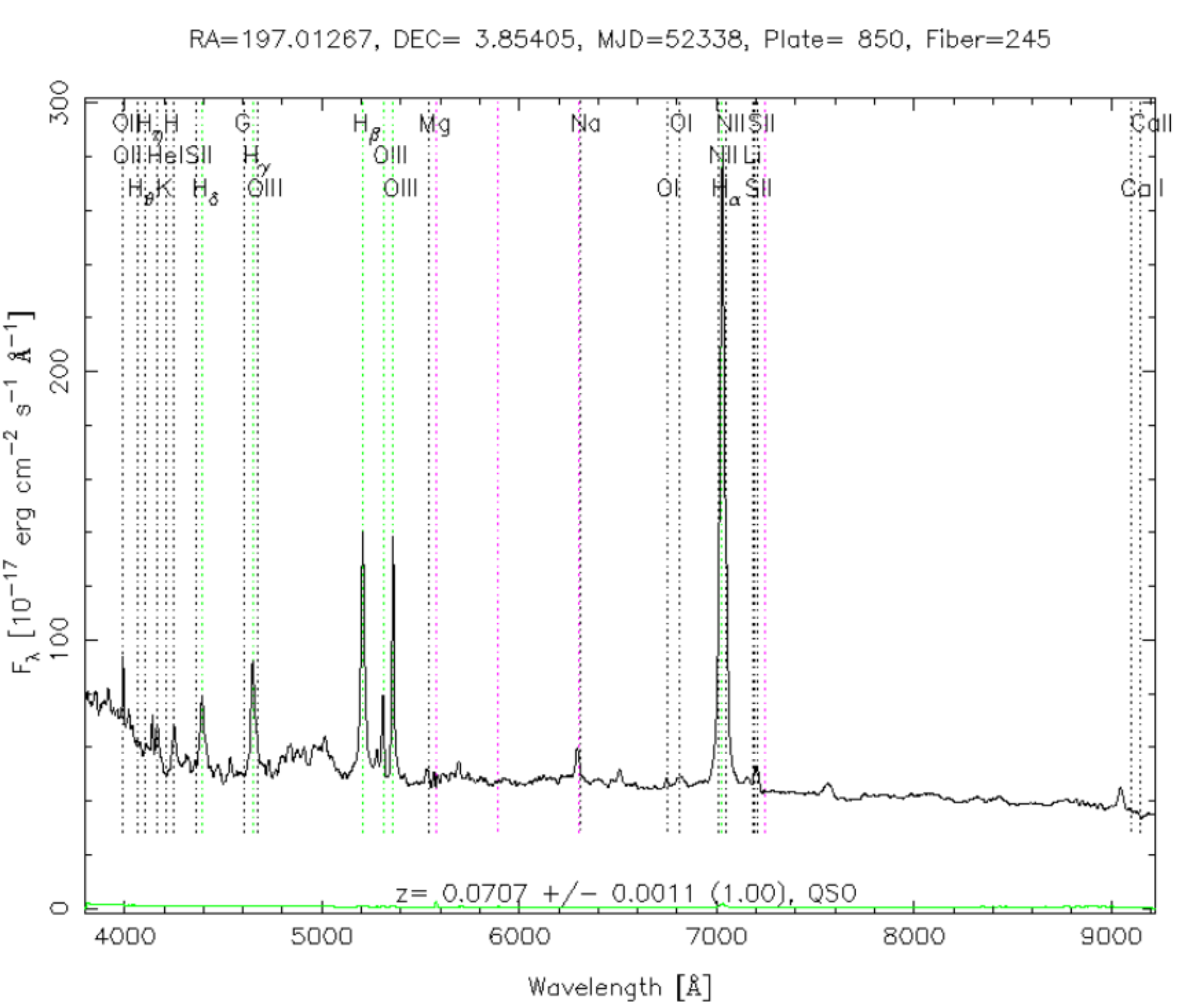
extinction_r	petroRad_r	parentId	nChild
0.08	4.221	587729157893652610	0

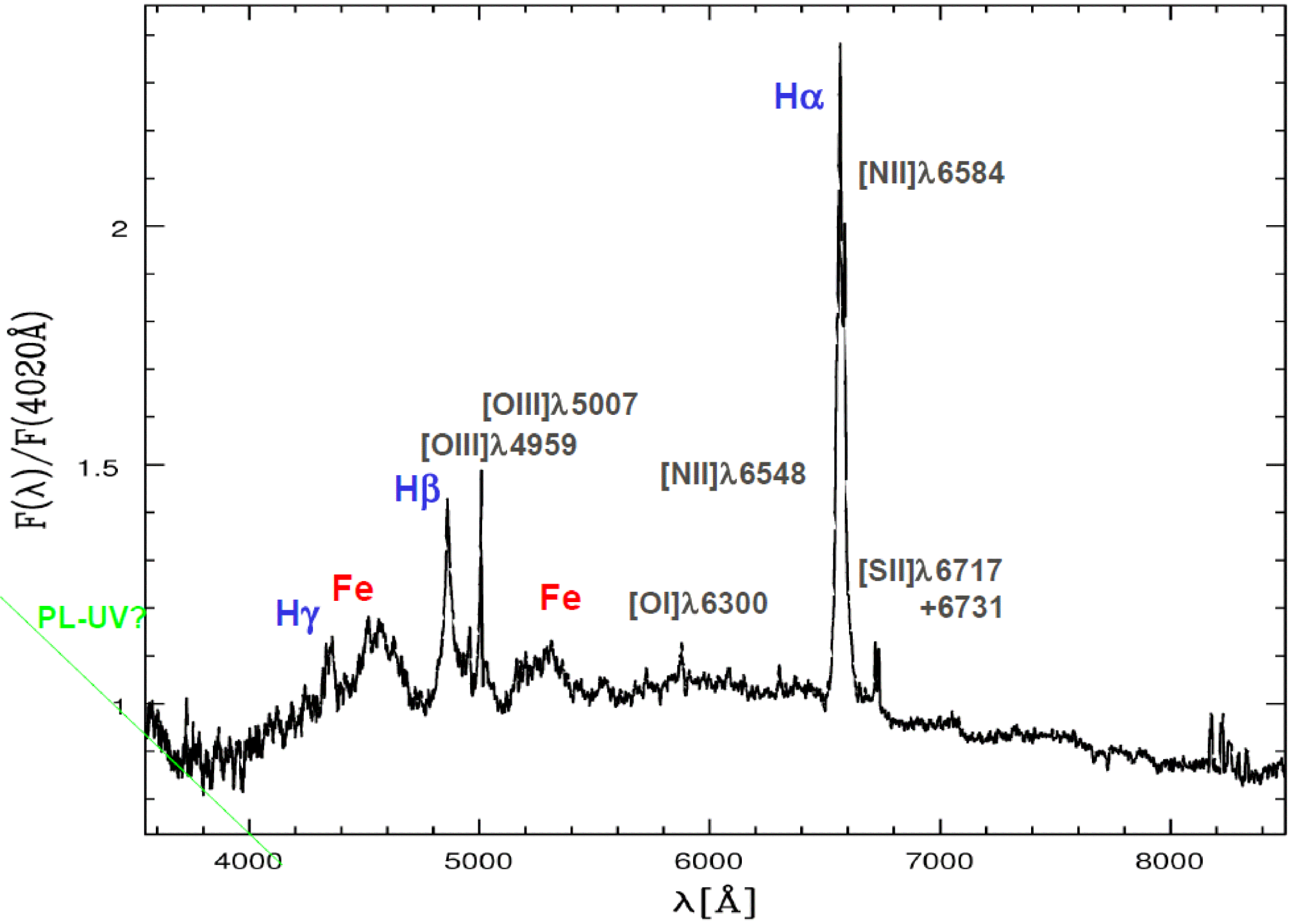
SpecObjID = 2394785212300000128

plate	mjd	fiberId	z	zErr	zConf	specClass	ra	dec	fiberMag_r	objId
850	52338	245	0.071	0.00105	0.999856	QSO	197.01267	3.85405	17.24	587729157893652611



zStatus	XCORR_HIC
zWarning	NOT_GAL
PrimTarget	TARGET_ROSAT_D TARGET_ROSAT_C TARGET_ROSAT_B TARGET_GALAXY TARGET_QSO_CAP
SecTarget	
eClass	0.248793
emZ	0.658
emConf	0.72607


RA=197.01267, DEC= 3.85405, MJD=52338, Plate= 850, Fiber=245
OII
H$_\theta$
H$_\eta$
HeI
SII
H$_\delta$
G
H$_\gamma$
OIII
H$_\beta$
OIII
OIII
Mg
Na
OI
OI
NII
H$_\alpha$
NII
SII
SII
CaII
CaII
z= 0.0707 +/- 0.0011 (1.00), QSO
F$_\lambda$ [10^{-17} erg cm^{-2} s^{-1} Å^{-1}]
0
100
200
300
4000
5000
6000
7000
8000
9000
Wavelength [Å]


Hα
[NII]λ6584
[OIII]λ5007
[OIII]λ4959
Hβ
[NII]λ6548
Hγ
Fe
Fe
[OI]λ6300
[SII]λ6717
+6731
PL-UV?
F(λ)/F(4020Å)
λ[Å]
1
1.5
2
4000
5000
6000
7000
8000

Question

- How is the non-stellar continuum in NLS1s ?

"Answer"

Our approach → Spectral Synthesis techniques

We use the code Starlight to find the "population vector", i.e., the contributions of stellar and non-stellar populations to the observed flux.

Stellar populations:

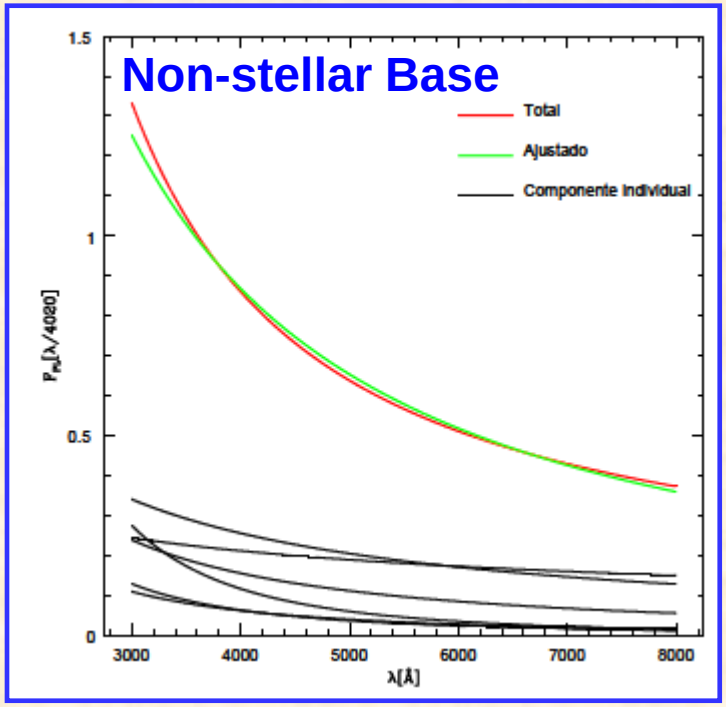
150 Single Stellar Populations (Bruzual&Charlot, 2007)
25 ages, from 10^5 to $10^{10.3}$ years, each one with
6 metallicities from 0.02 to 2.5 Z_{sun}.

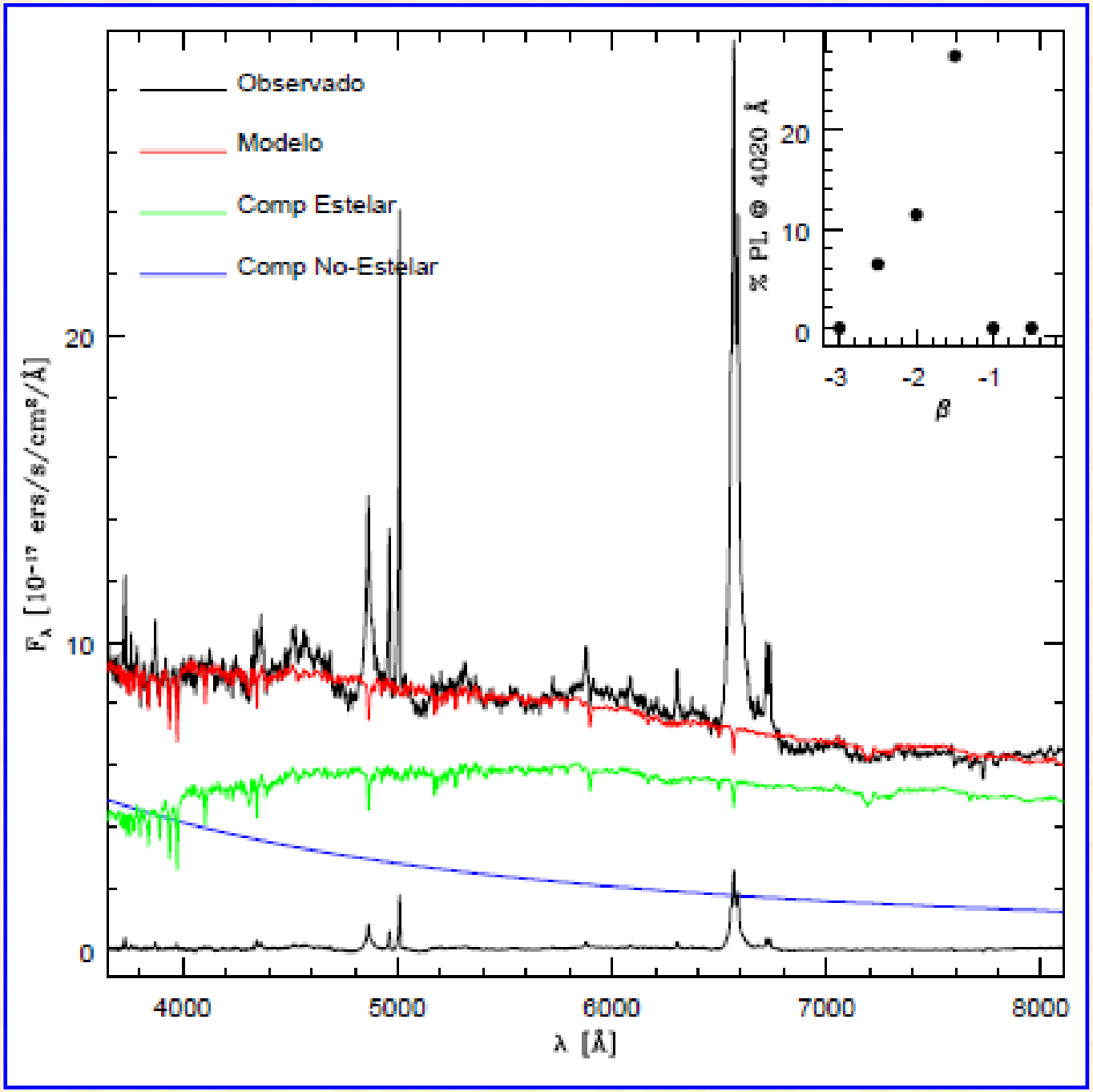
Non-stellar base:

6 power-laws with slopes α from 0.5 to -2.5
$F(\nu) \propto \nu^{\alpha}$ or $F(\lambda) \propto \lambda^{\beta}$ $[\alpha = -(\beta + 2)]$

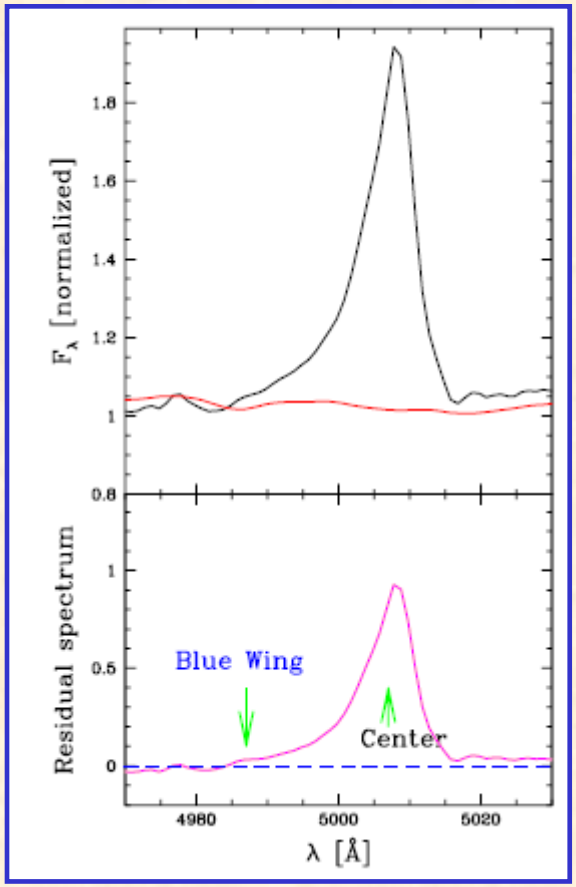
Minimization of $\chi^2 = \Sigma\,[O(\lambda) - M(\lambda)]^2.\omega^2$

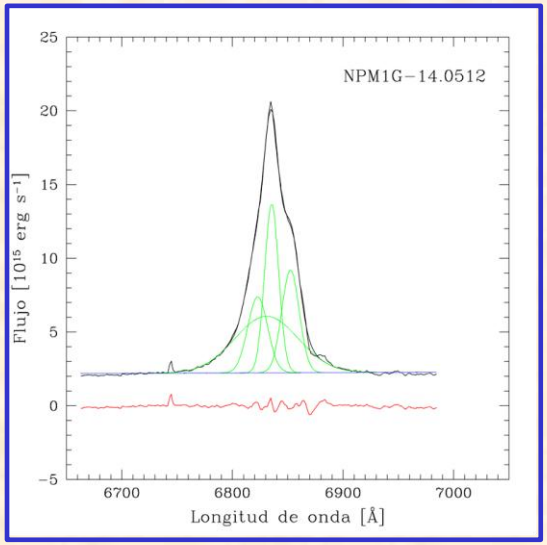
(ω = 0 in masked regions, like emission lines, bad pixels, etc..)

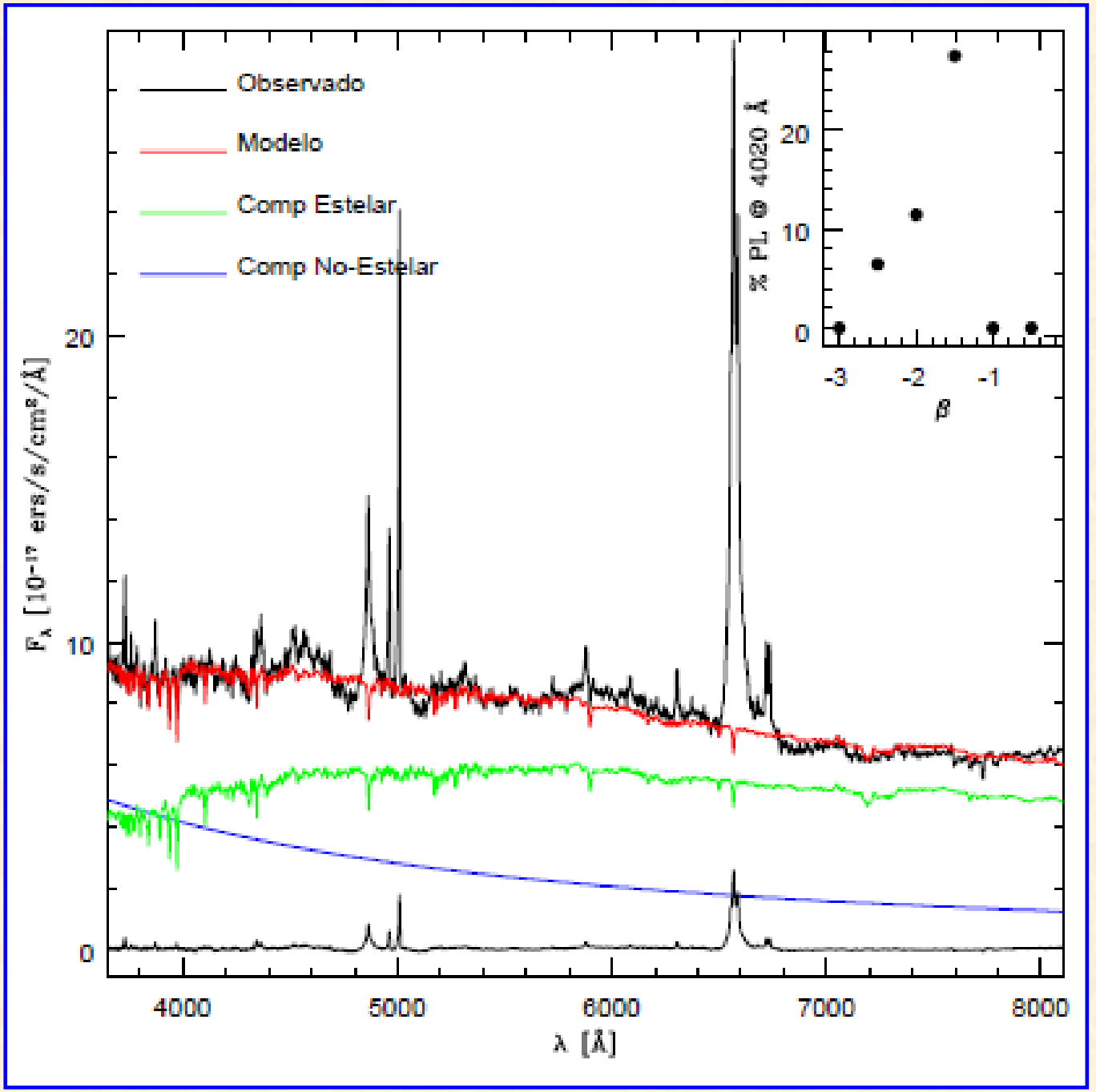




$$FPL \sim X_{PL1}\lambda^{\beta 1} + X_{PL2}\lambda^{\beta 2} + X_{PL3}\lambda^{\beta 3} + X_{PL4}\lambda^{\beta 4} + X_{PL5}\lambda^{\beta 5} + X_{PL6}\lambda^{\beta 6}$$


F_λ [normalized]
Residual spectrum
Blue Wing
Center
λ [Å]


NPM1G−14.0512
Flujo [10¹⁵ erg s⁻¹]
Longitud de onda [Å]


Observado
Modelo
Comp Estelar
Comp No-Estelar
F_λ [10⁻¹⁷ ers/s/cm²/Å]
λ [Å]
% PL @ 4020 Å
β

Questions

- How is the non-stellar continuum in NLS1s ?

- Is there any relationship between the innermost regions of the active nuclei and their host galaxies ?

- What is the stellar content of their bulges ?

- How are the host galaxy properties related to central activity ?

- How is the emission in other wavelengths ? X, UV, IR, mm ?

- Is there NLS1s beyond z = 0.8 ?

-AGN phenomenon is a transient characteristic of a given galaxy. What is the role of NLS1s fit in this scenario ?

Questions

- How is the non-stellar continuum in NLS1s ?

- Is there any relationship between the innermost regions of the active nuclei and their host galaxies ?

- What is the stellar content of their bulges ?

- How are the host galaxy properties related to central activity ?

- How is the emission in other wavelengths ? X - UV - IR - mm

- Is there NLS1s beyond z = 0.8 ?

-AGN phenomenon is a transient characteristic of a given galaxy. What is the role of NLS1s fit in this scenario ?

Thanks..!