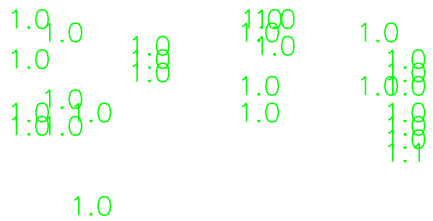
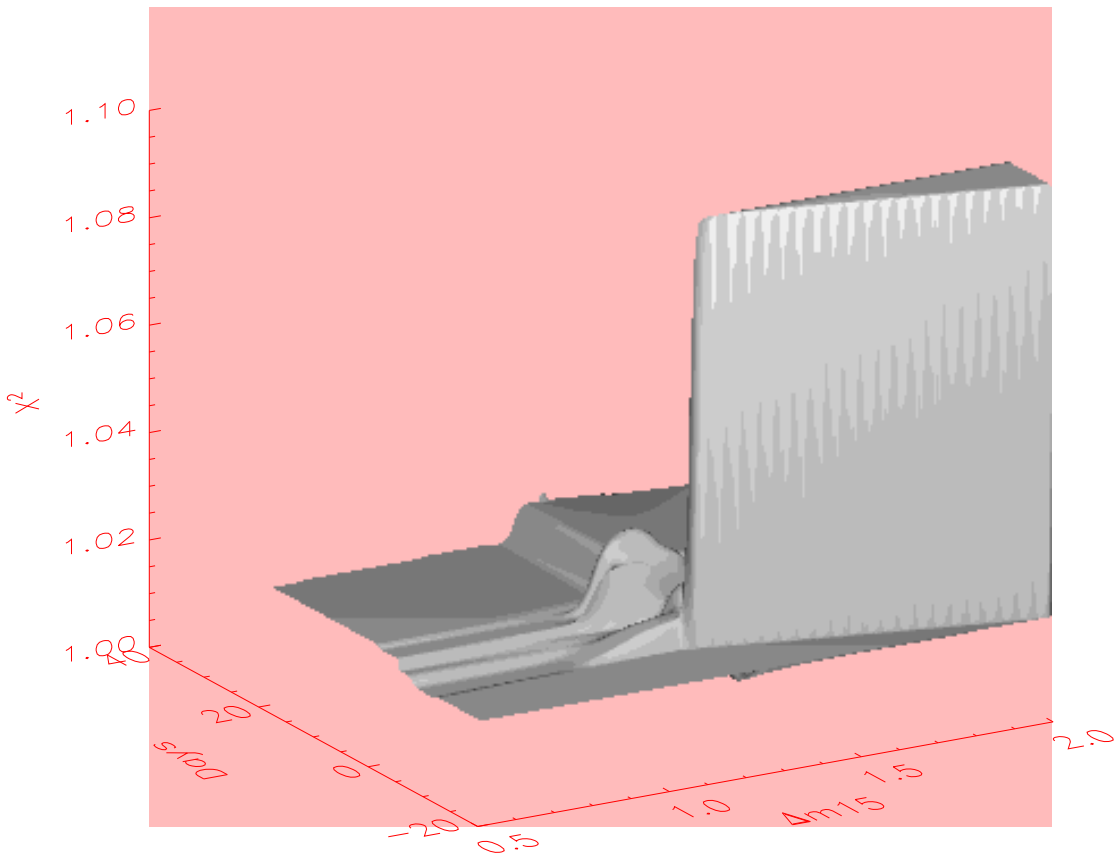
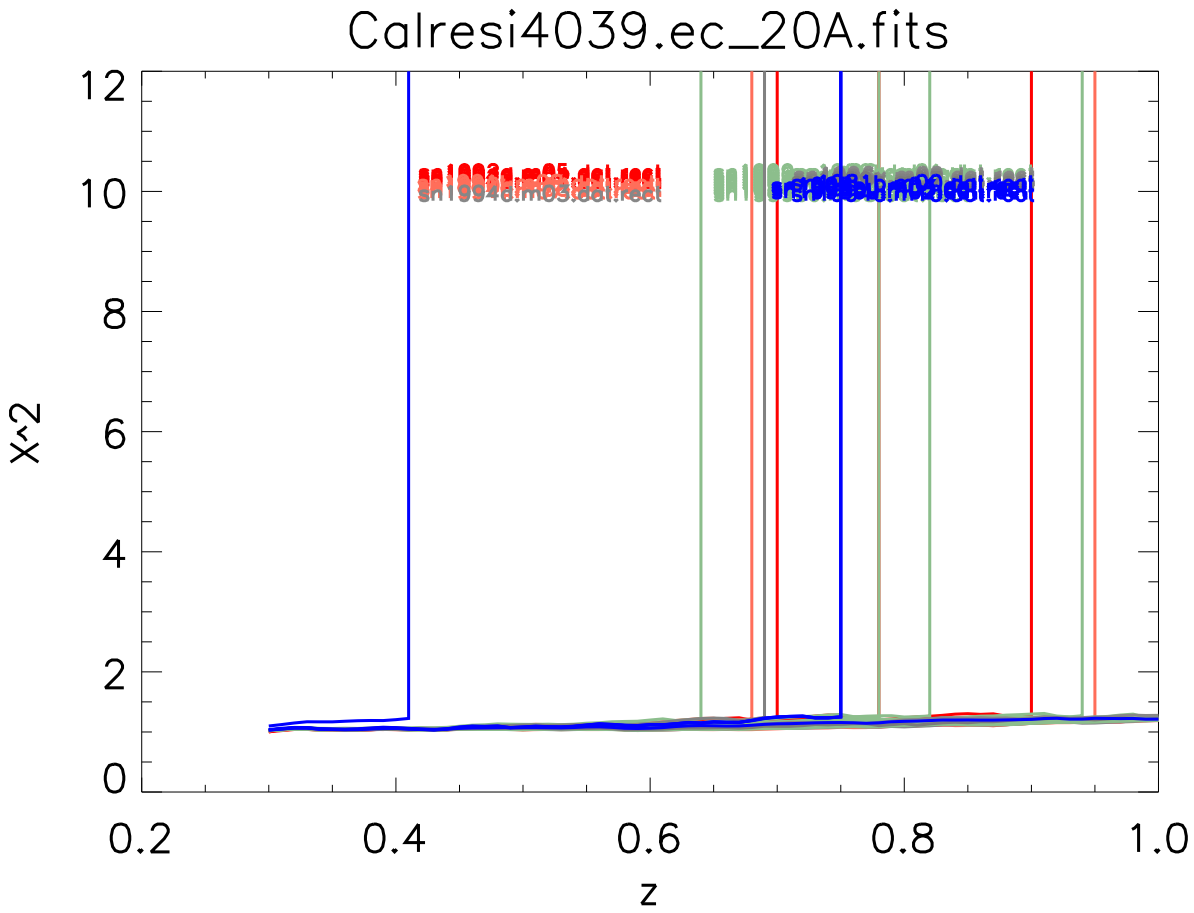

1.0
1.0
1.0



1.10
1.08
1.06
1.04
1.02
1.00
χ^2
40
20
0
−20
Days
0.5
1.0
1.5
2.0
Δm15


Calresi4039.ec_20A.fits
X^2
z
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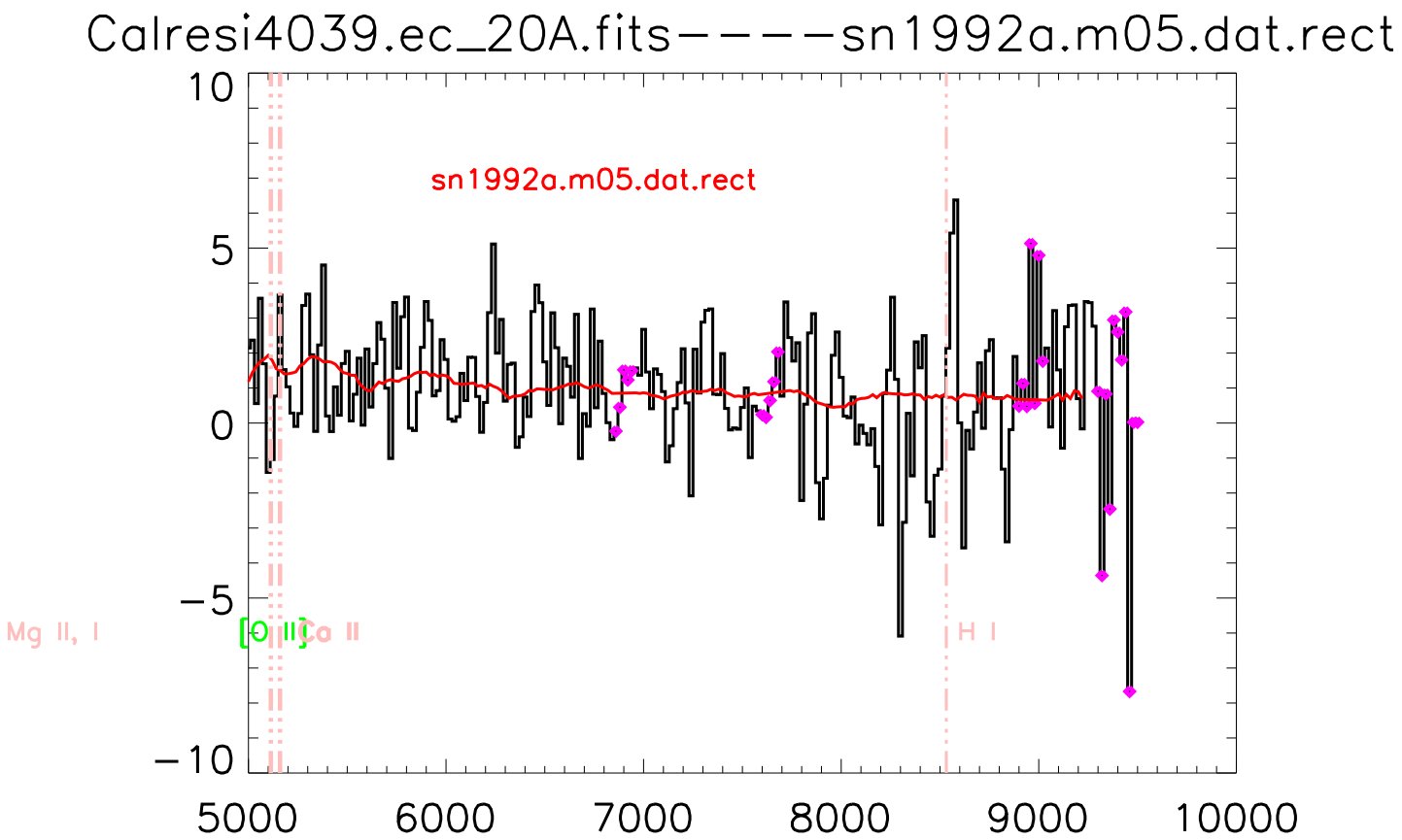
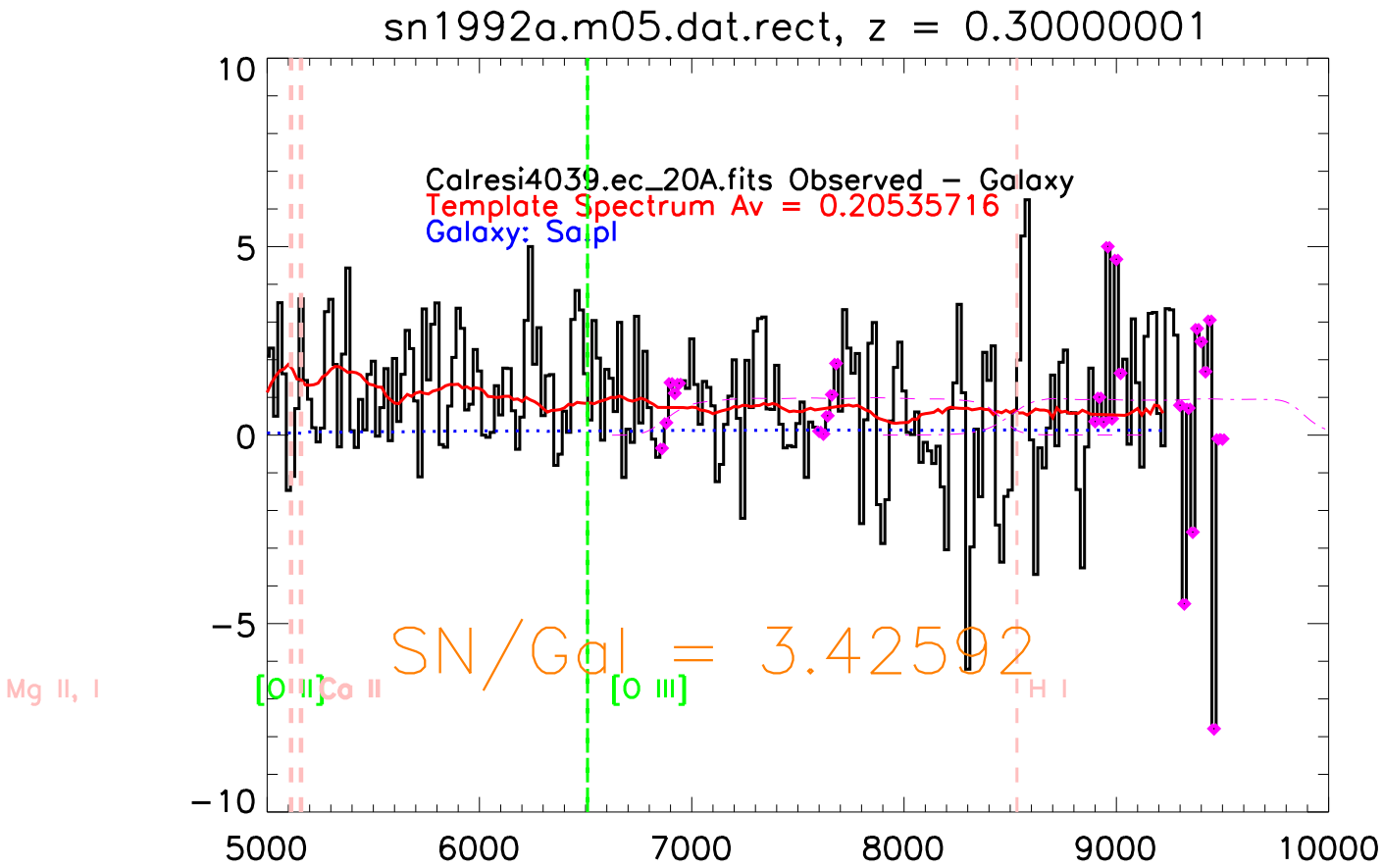
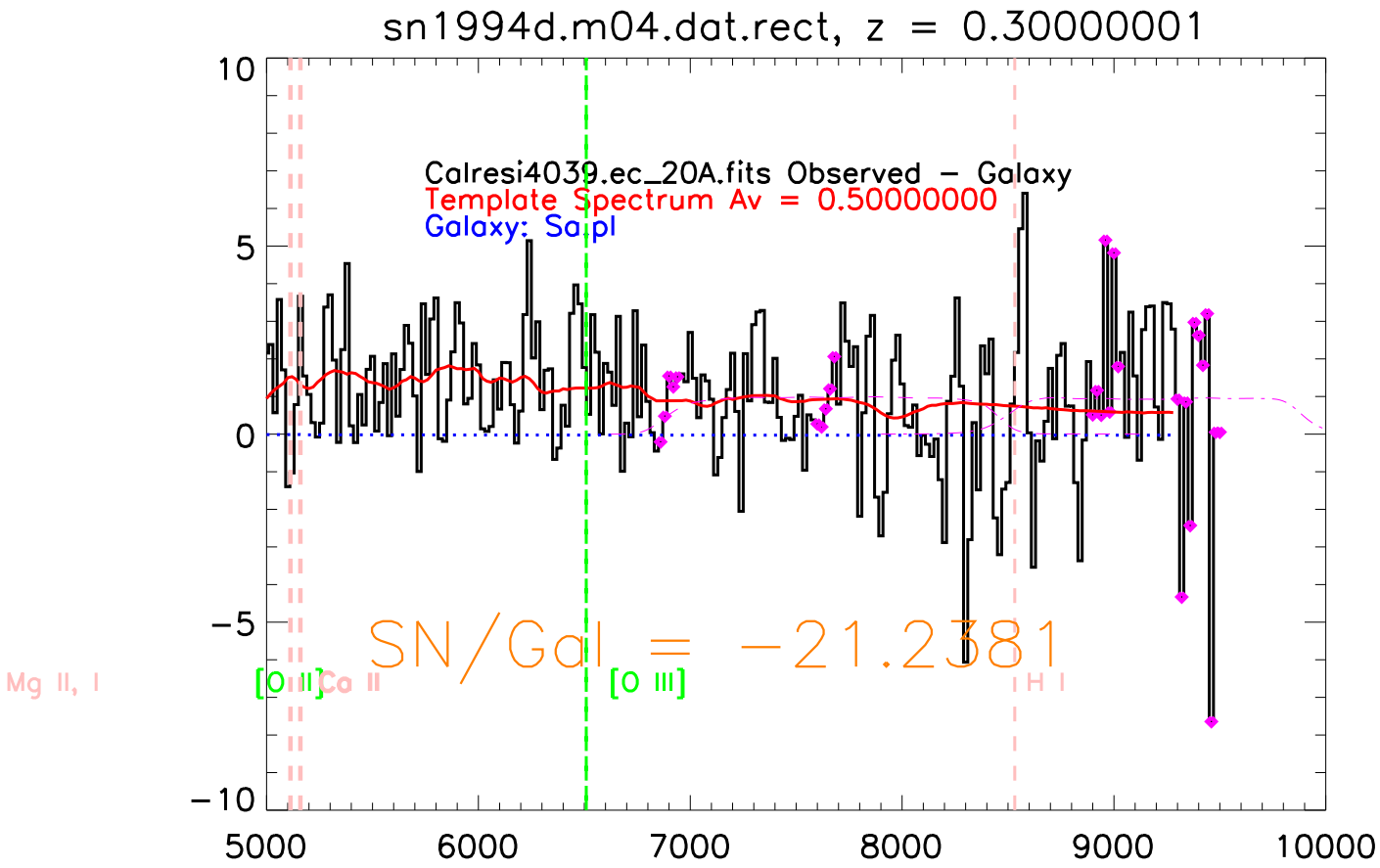
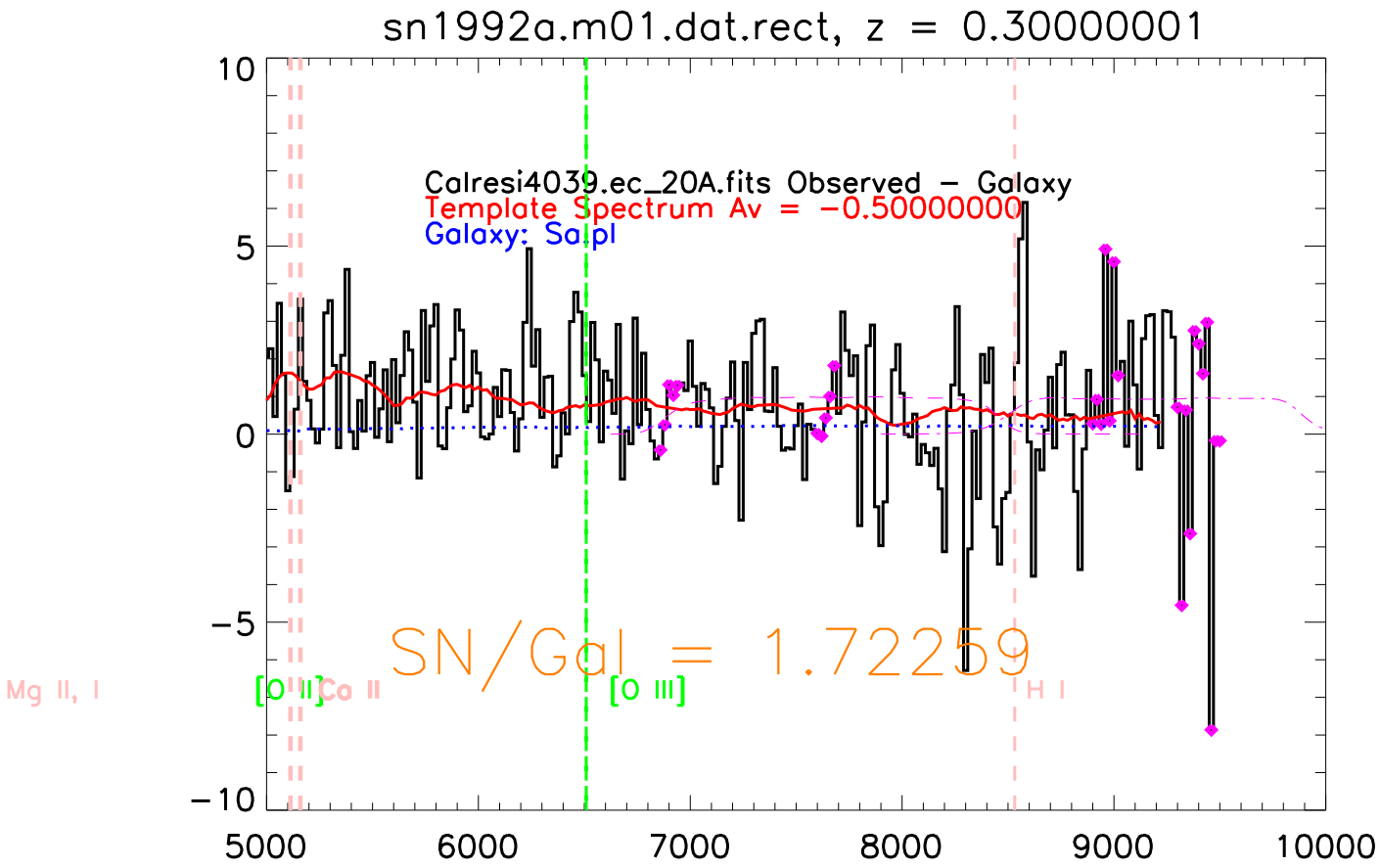
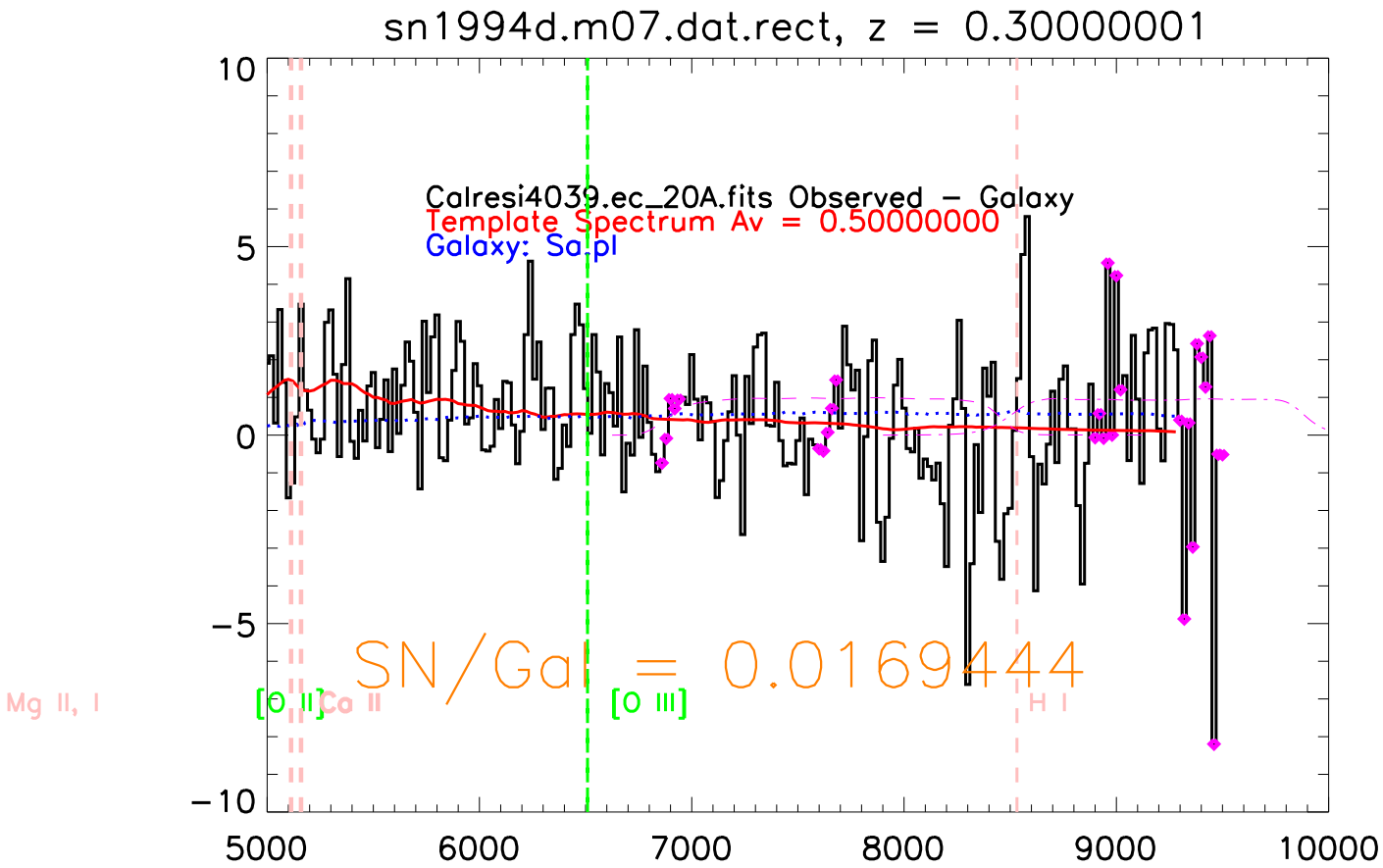
2
4
6
8
10
12
0.2
0.4
0.6
0.8
1.0

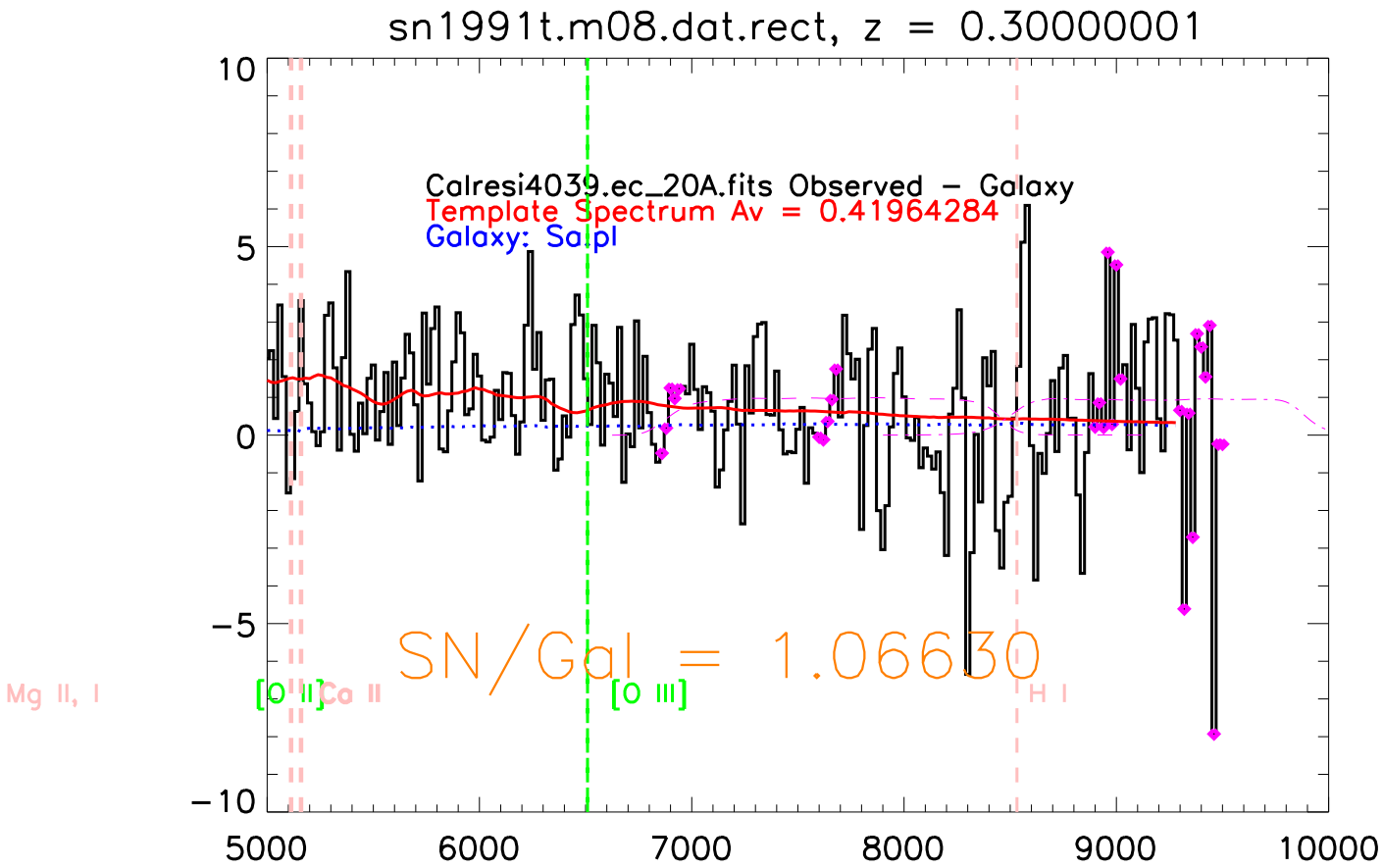

Calresi4039.ec_20A.fits----sn1992a.m05.dat.rect
sn1992a.m05.dat.rect
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000
Mg II, I
[O II]
Ca II
H I

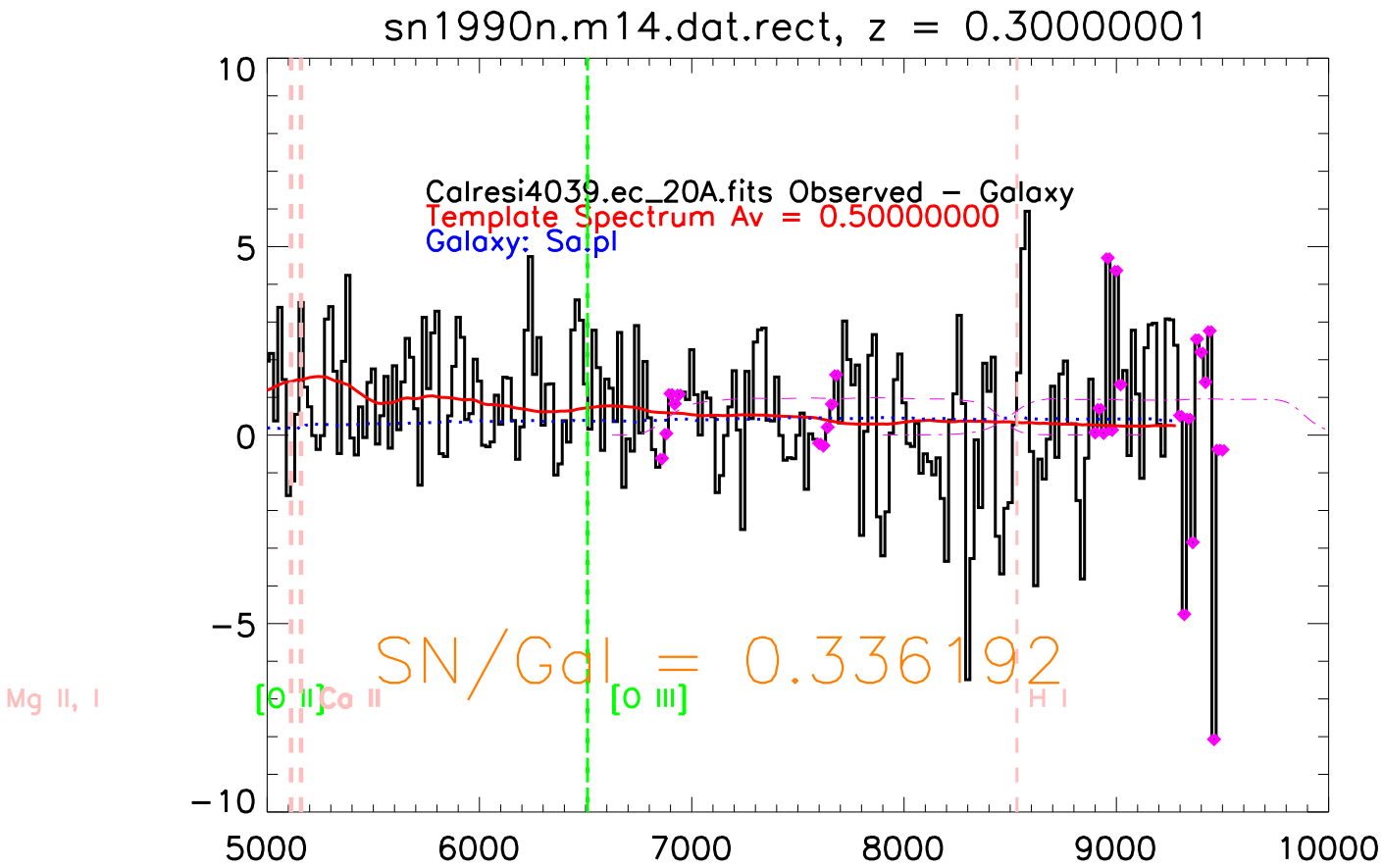

sn1992a.m05.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 0.20535716
Galaxy: Sa.pl
SN/Gal = 3.42592
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000

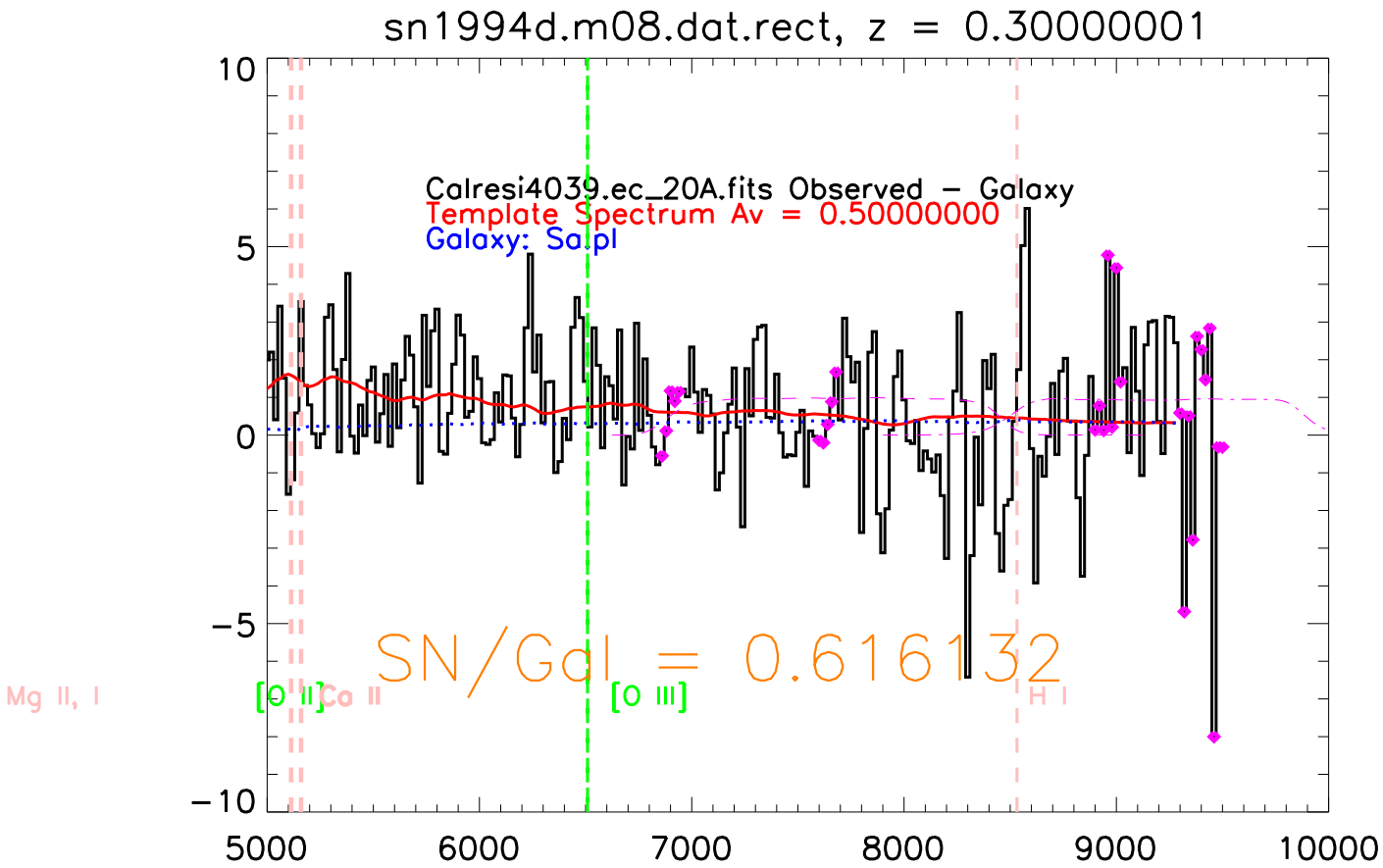

sn1994d.m04.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 0.50000000
Galaxy: Sa pl
SN/Gal = −21.2381
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000

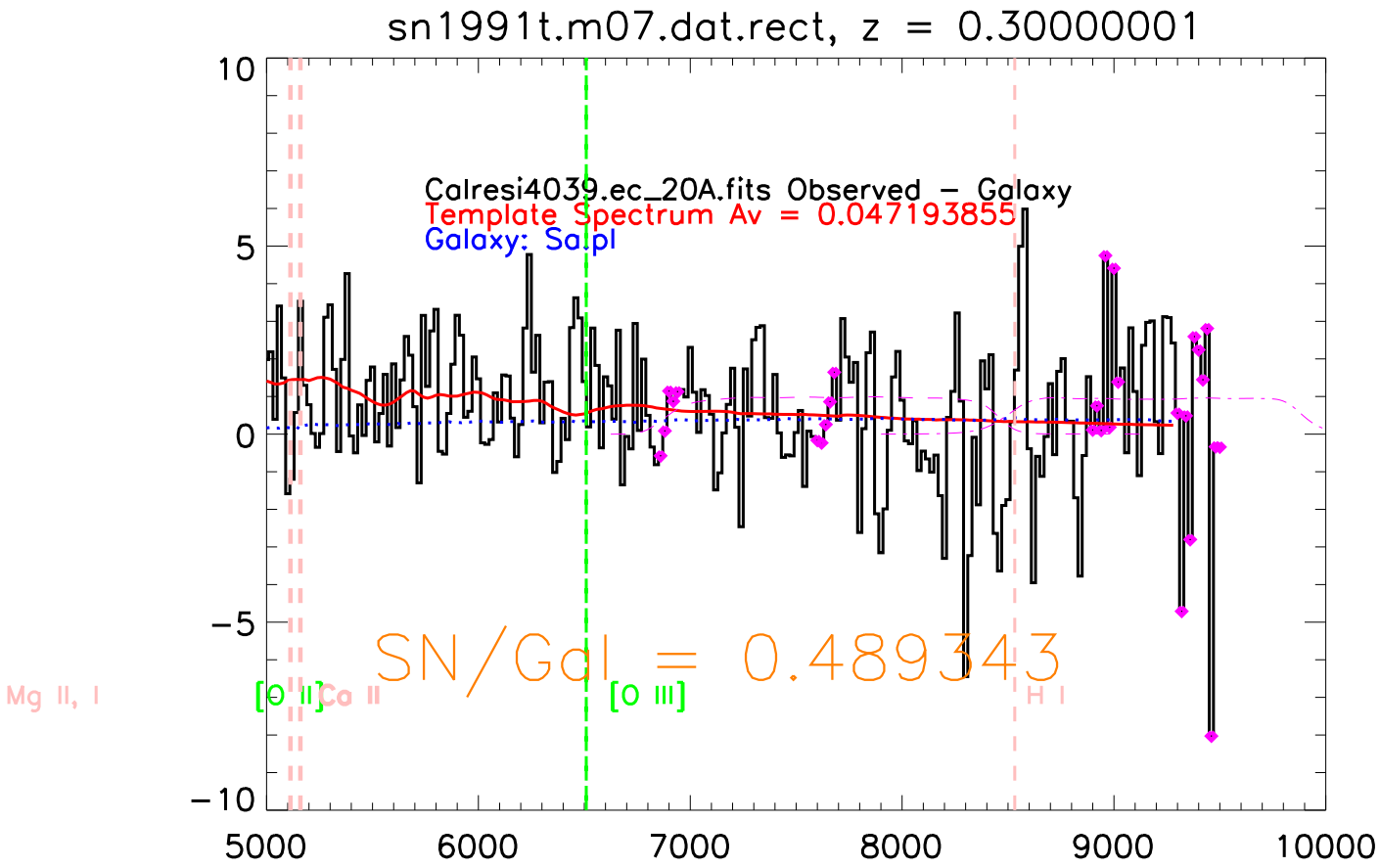

sn1992a.m01.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = −0.50000000
Galaxy: Sa.pl
SN/Gal = 1.72259
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000

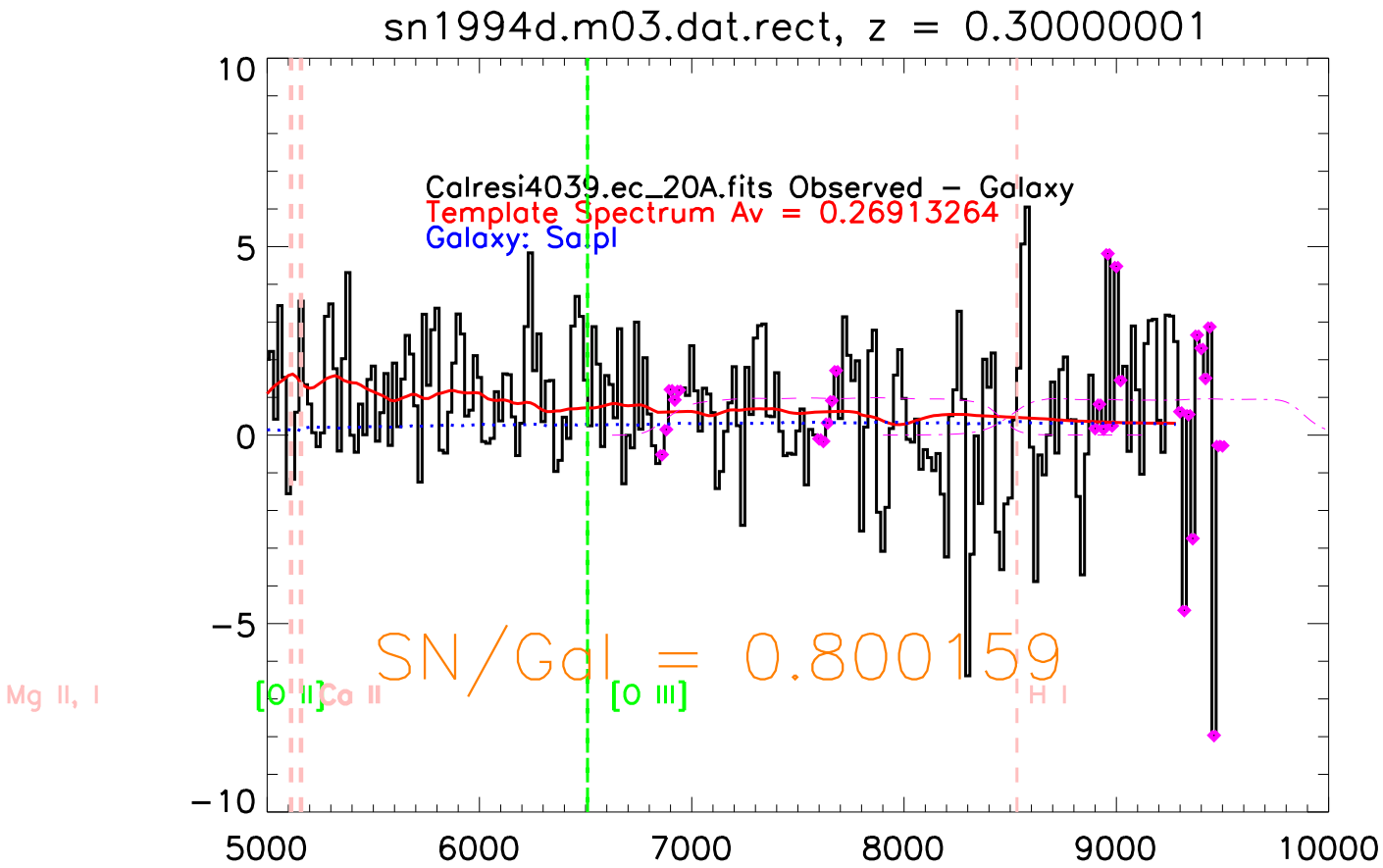

sn1994d.m07.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 0.50000000
Galaxy: Sa.pl
SN/Gal = 0.0169444
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000

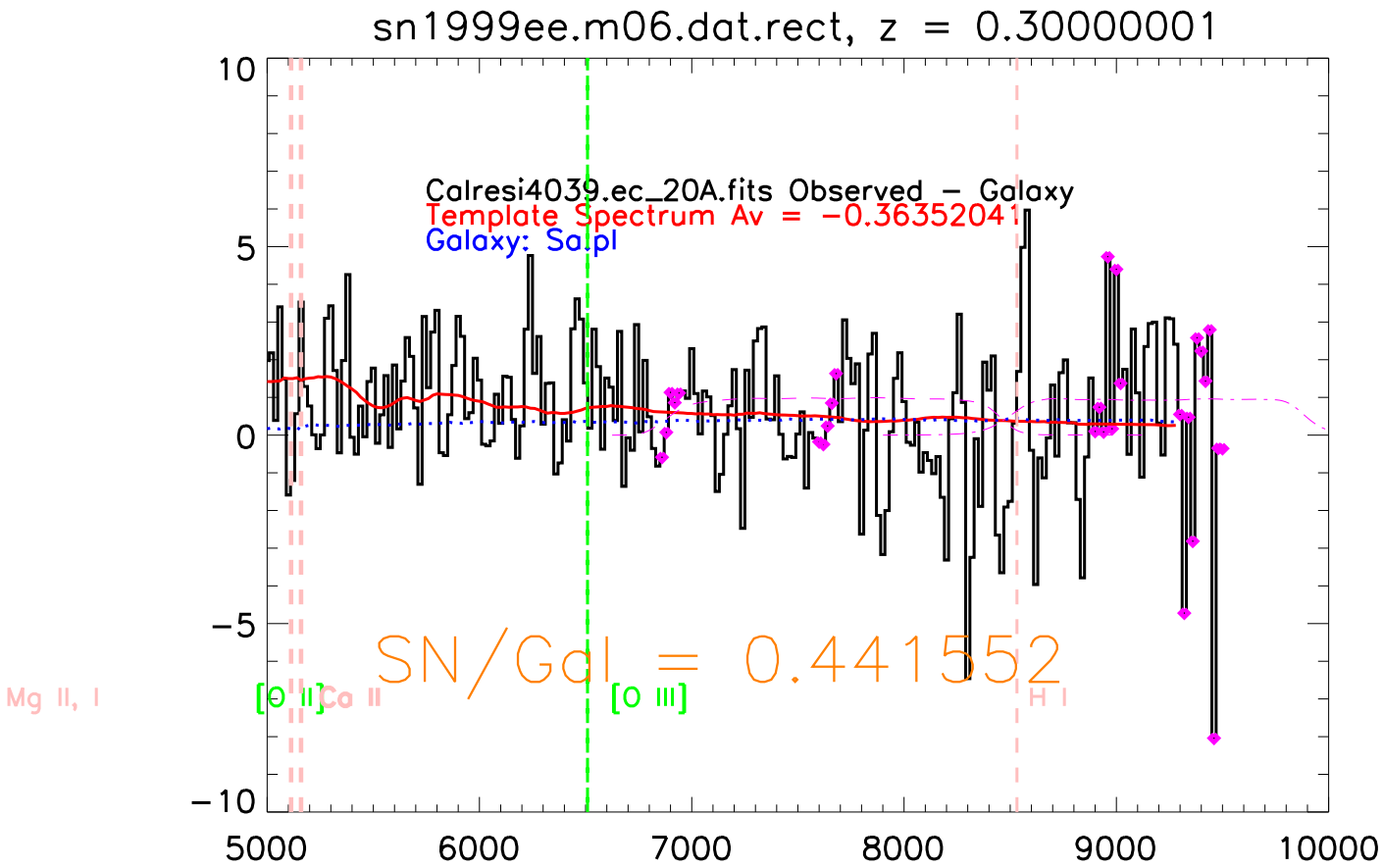

sn1991t.m08.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 0.41964284
Galaxy: Sa.pl
SN/Gal = 1.06630
Mg II, I
[O II]
Co II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000

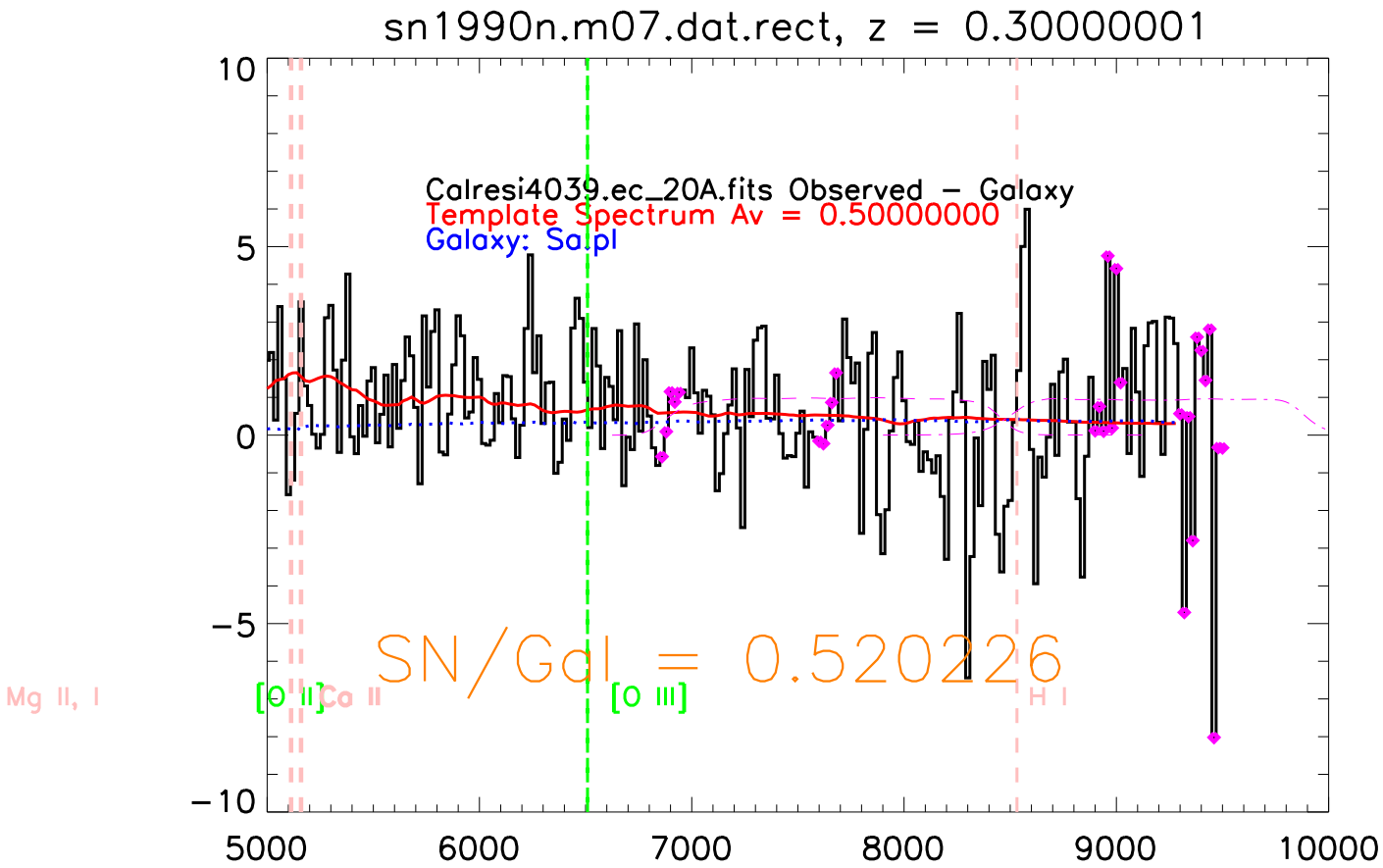

sn1990n.m14.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 0.50000000
Galaxy: Sa.pl
SN/Gal = 0.336192
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000

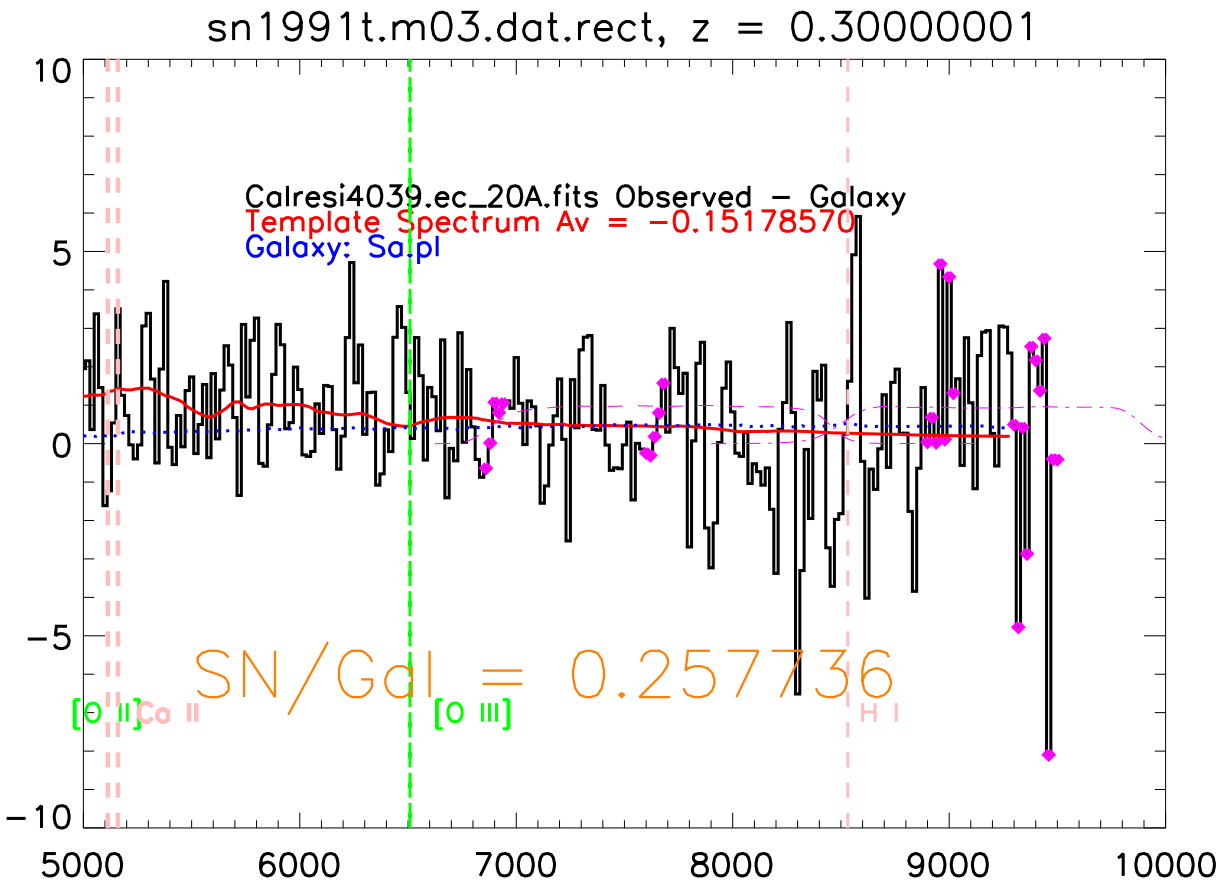

sn1994d.m08.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 0.50000000
Galaxy: Sa.pl
SN/Gal = 0.616132
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000

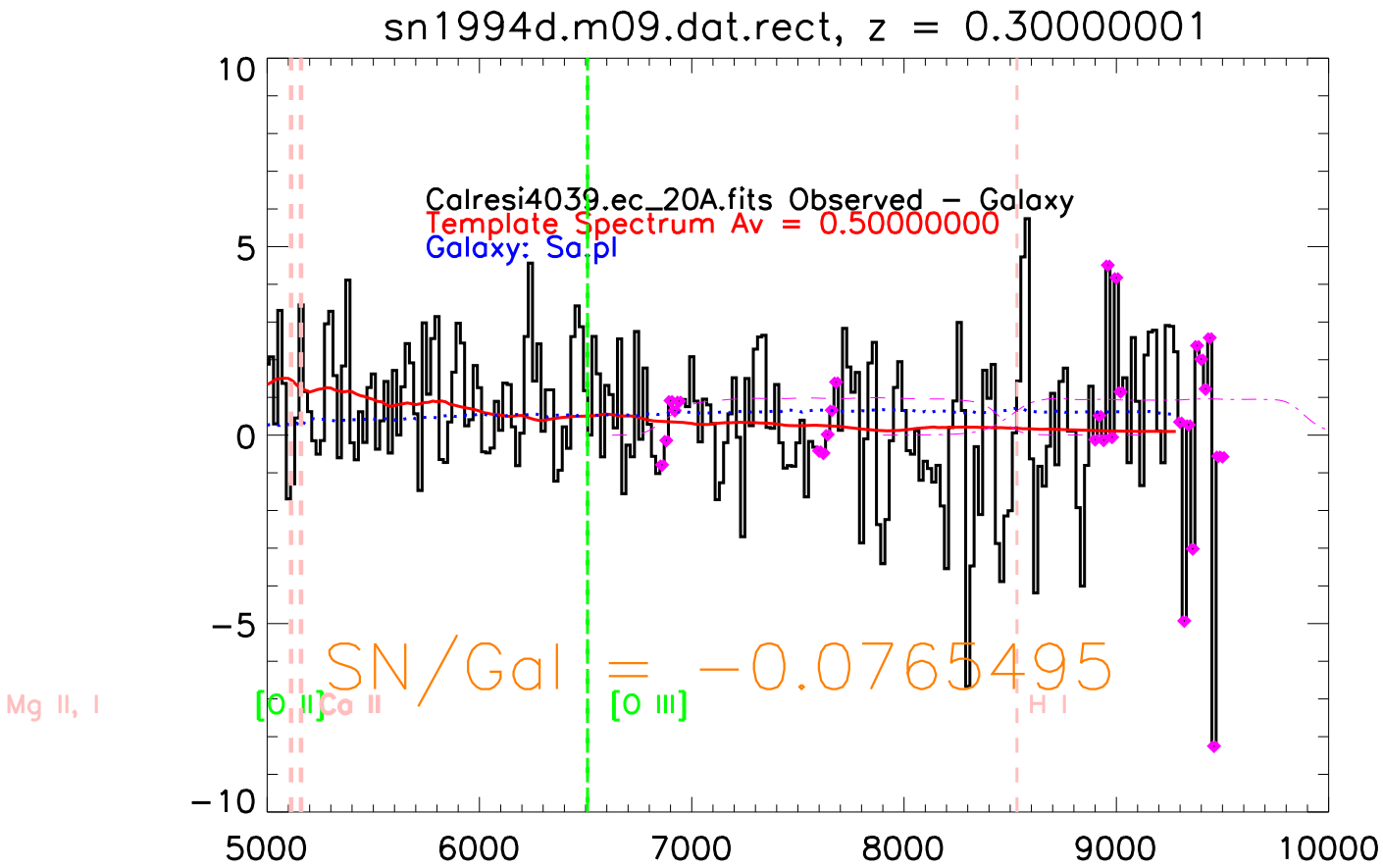

sn1991t.m07.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 0.047193855
Galaxy: Sa.pl
SN/Gal = 0.489343
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000

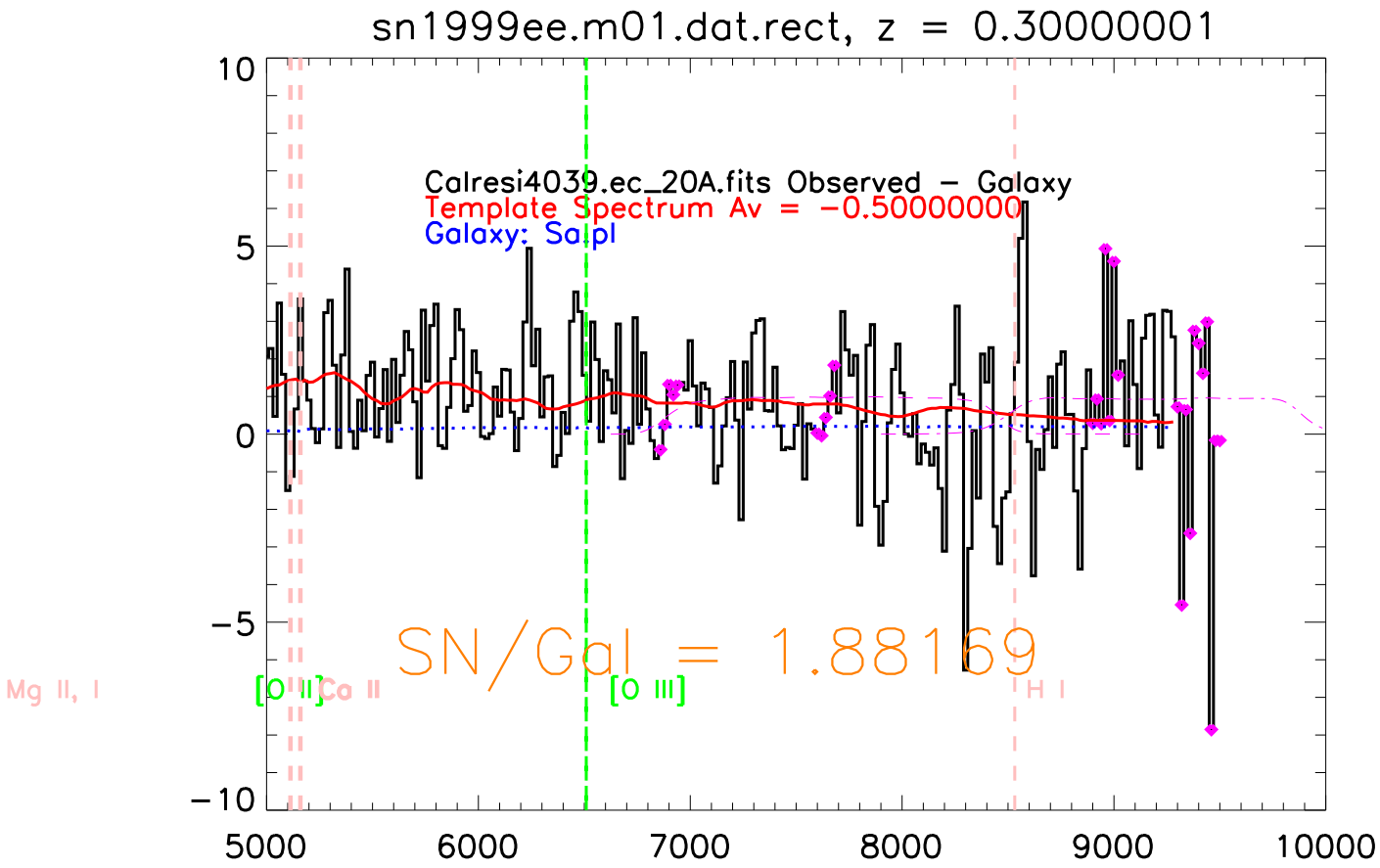

sn1994d.m03.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 0.26913264
Galaxy: Sa.pl
SN/Gal = 0.800159
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000

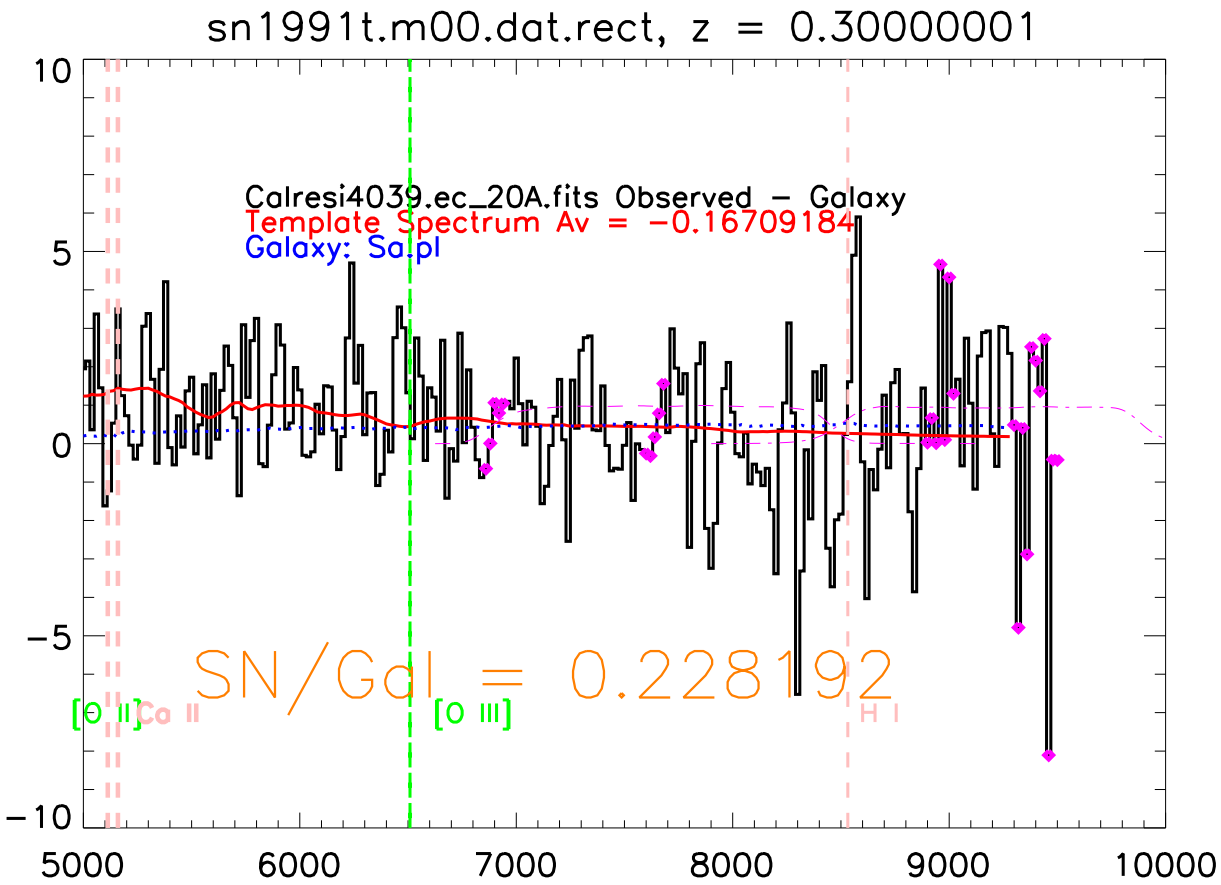

sn1999ee.m06.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = −0.3635204
Galaxy: Sa.pl
SN/Gal = 0.441552
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000

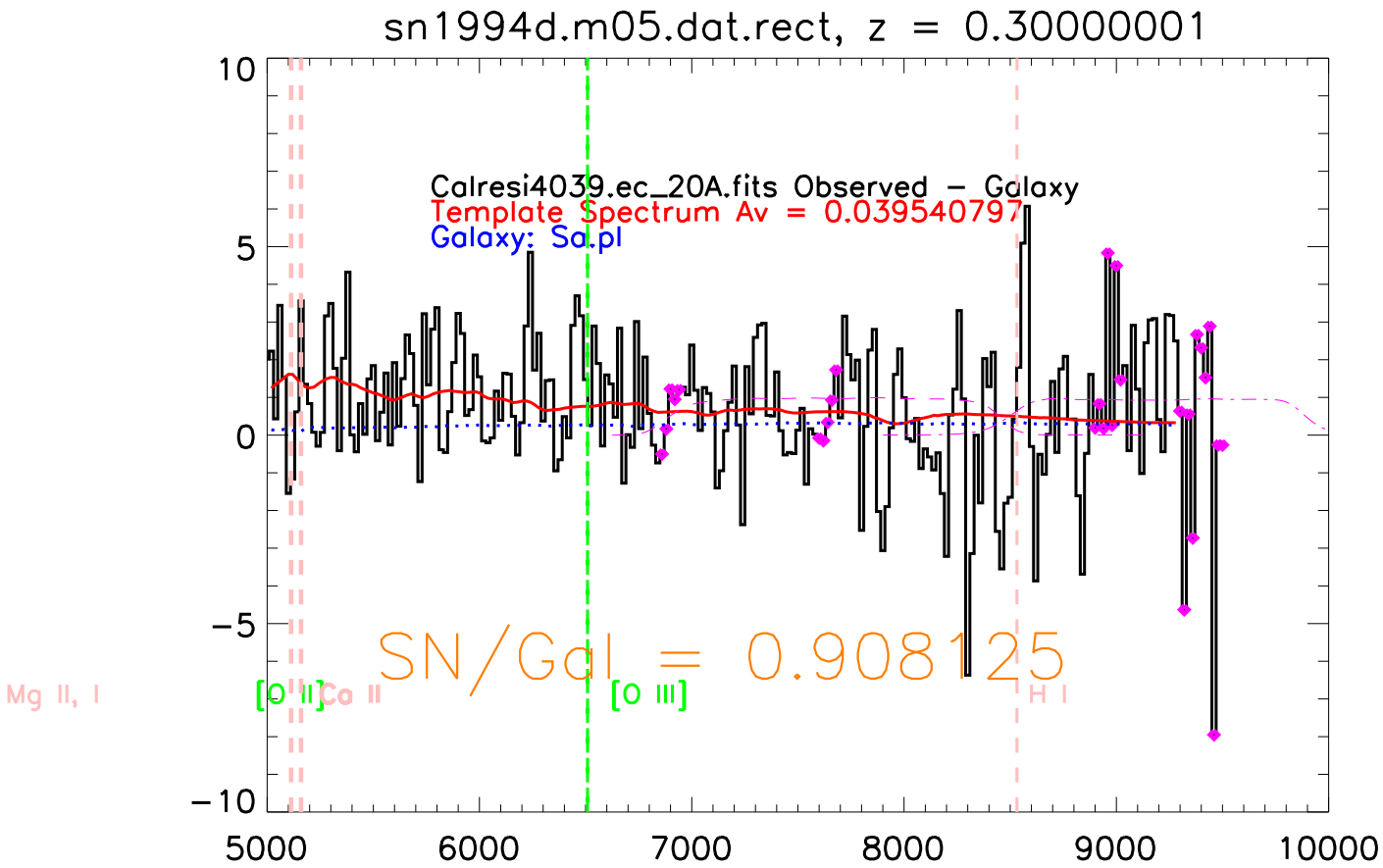

sn1990n.m07.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 0.50000000
Galaxy: Sa.pl
SN/Gal = 0.520226
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000

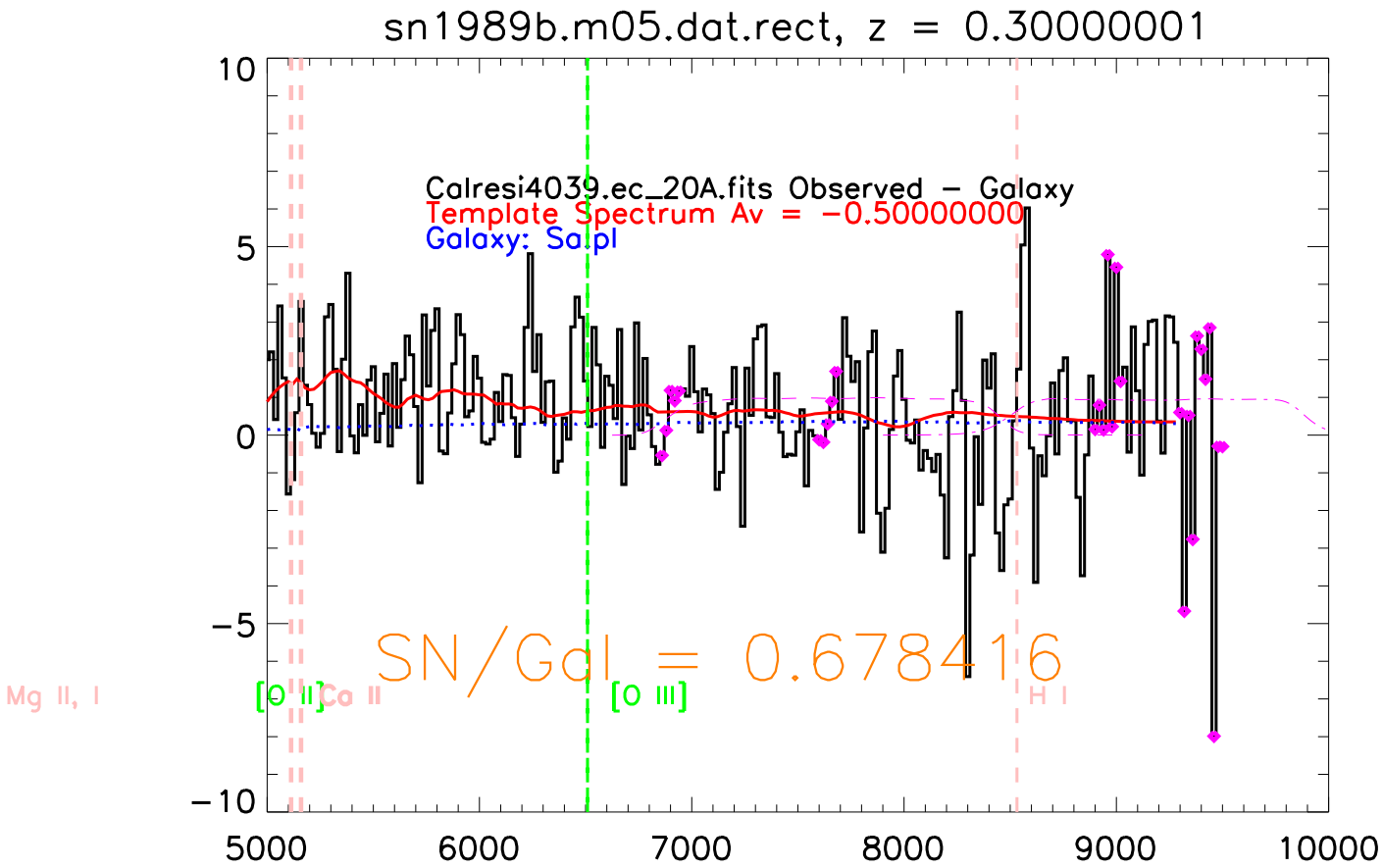

sn1991t.m03.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = −0.15178570
Galaxy: Sa.pl
SN/Gal = 0.257736
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000

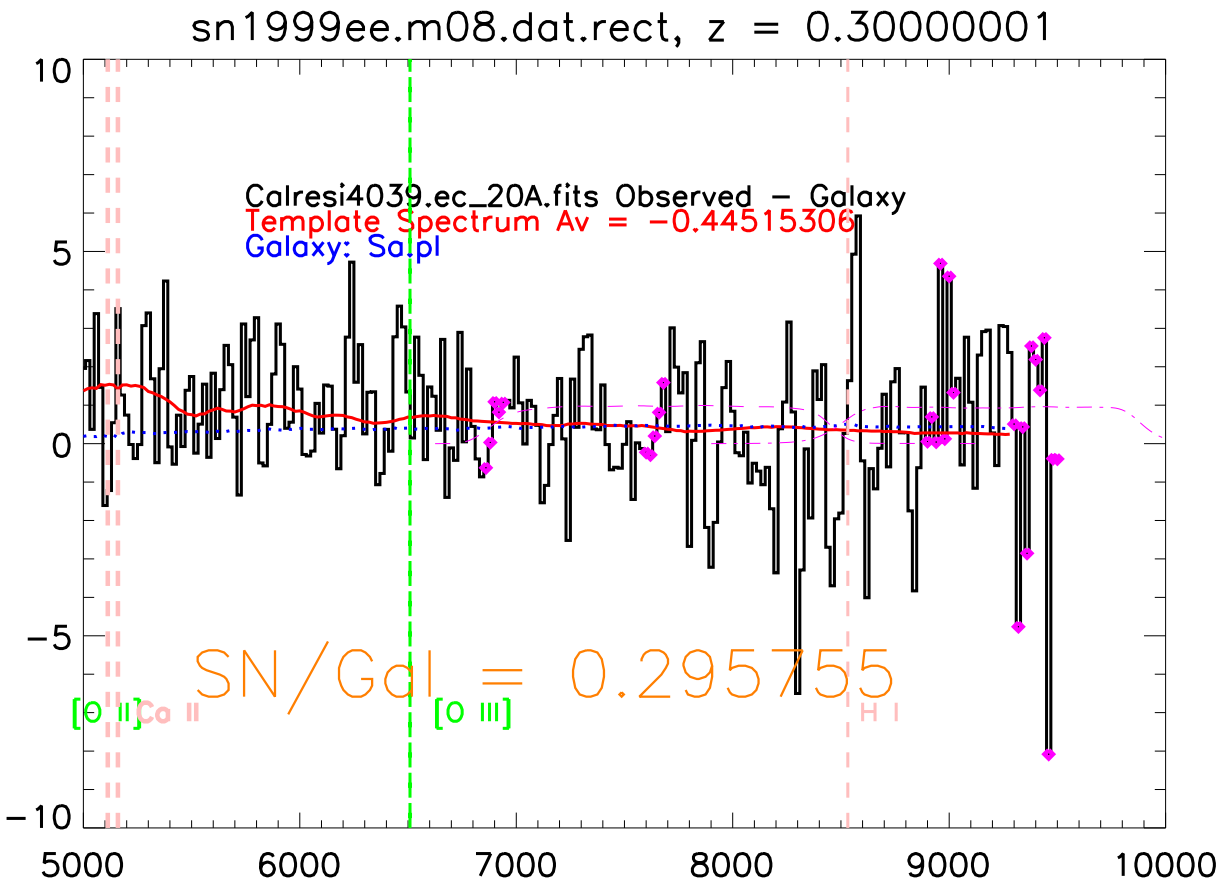

sn1994d.m09.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 0.50000000
Galaxy: Sa.pl
SN/Gal = −0.0765495
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000

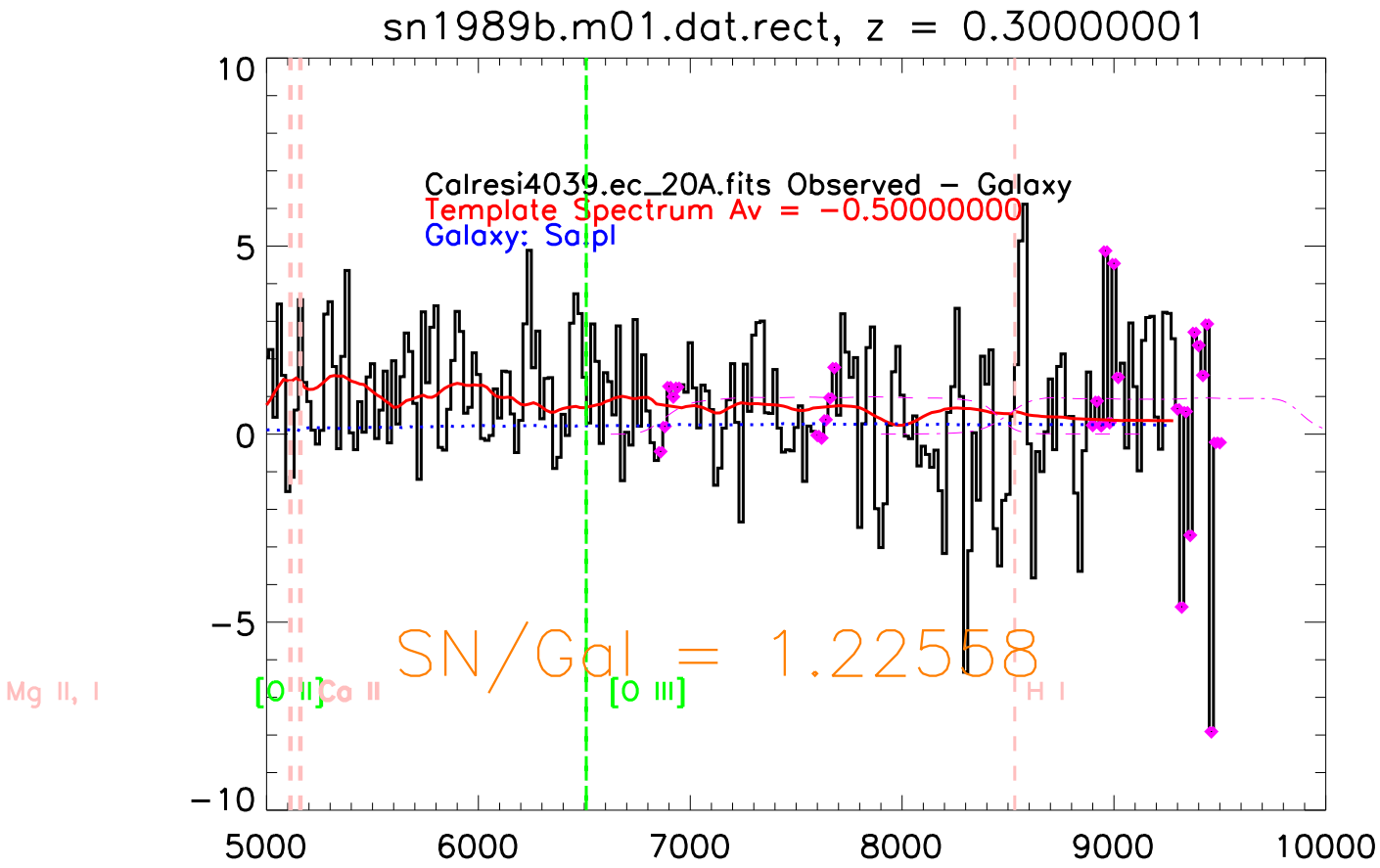

sn1999ee.m01.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = −0.50000000
Galaxy: Sa.pl
SN/Gal = 1.88169
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000

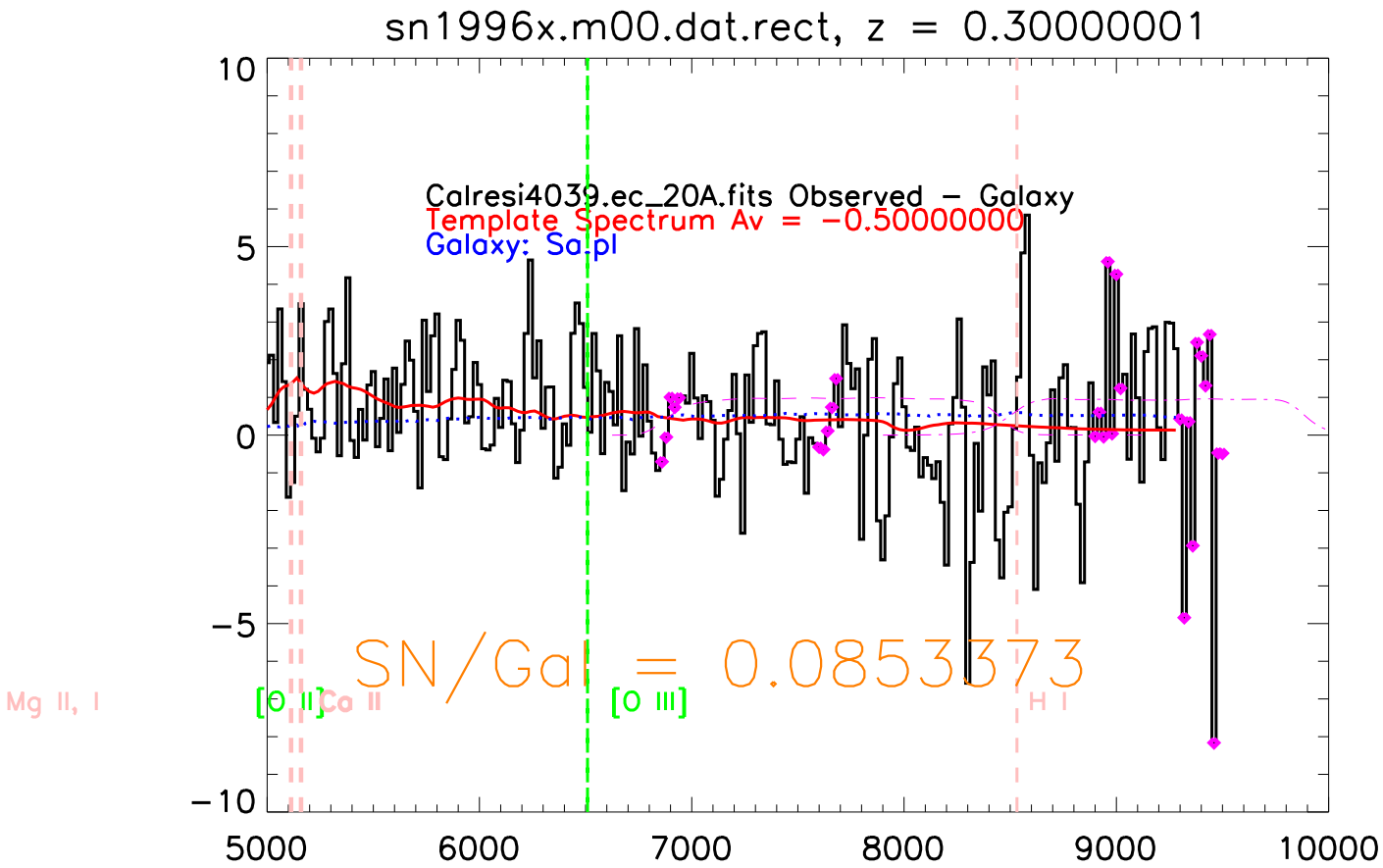

sn1991t.m00.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = −0.16709184
Galaxy: Sa.pl
SN/Gal = 0.228192
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000

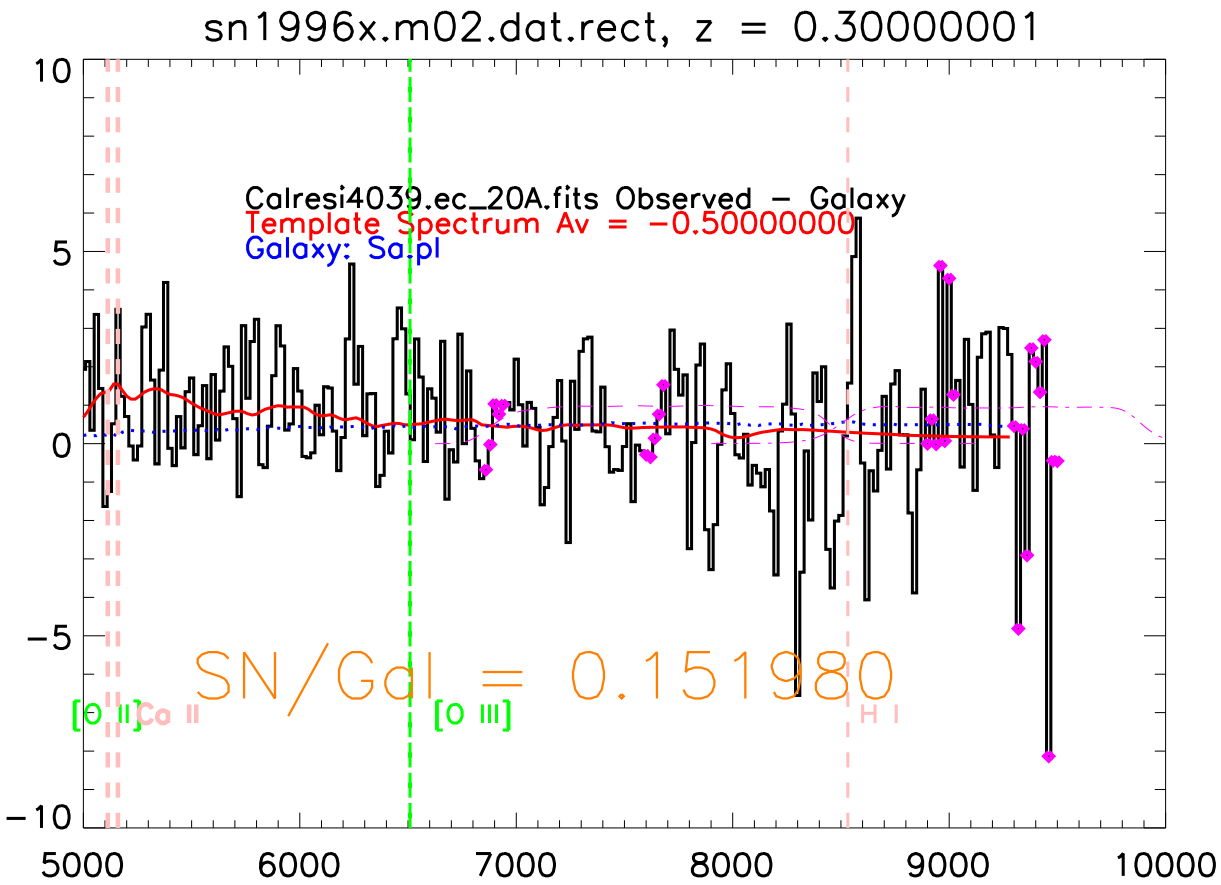

sn1994d.m05.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 0.039540797
Galaxy: Sa.pl
SN/Gal = 0.908125
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000

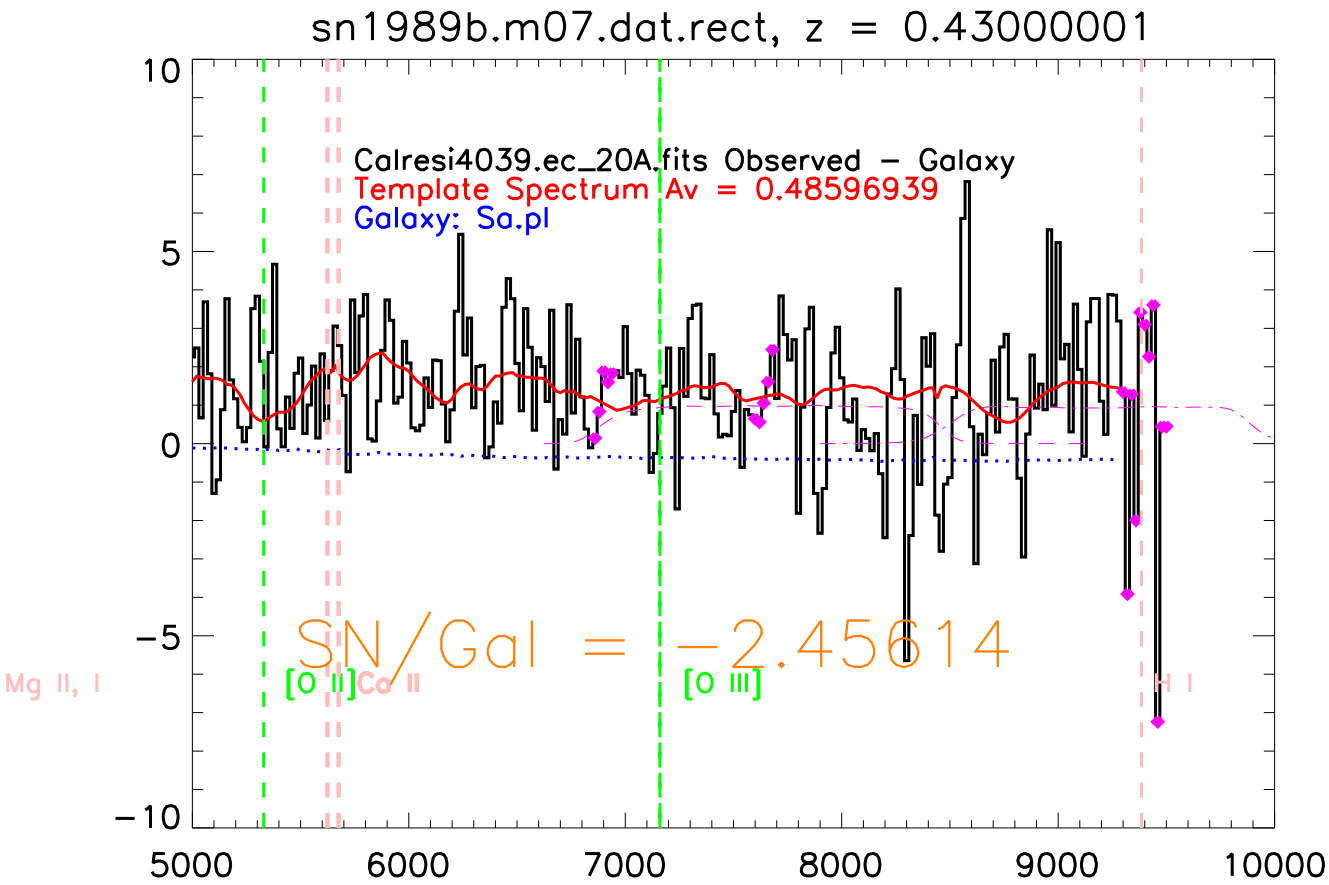

sn1989b.m05.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = −0.50000000
Galaxy: Sa.pl
SN/Gal = 0.678416
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000

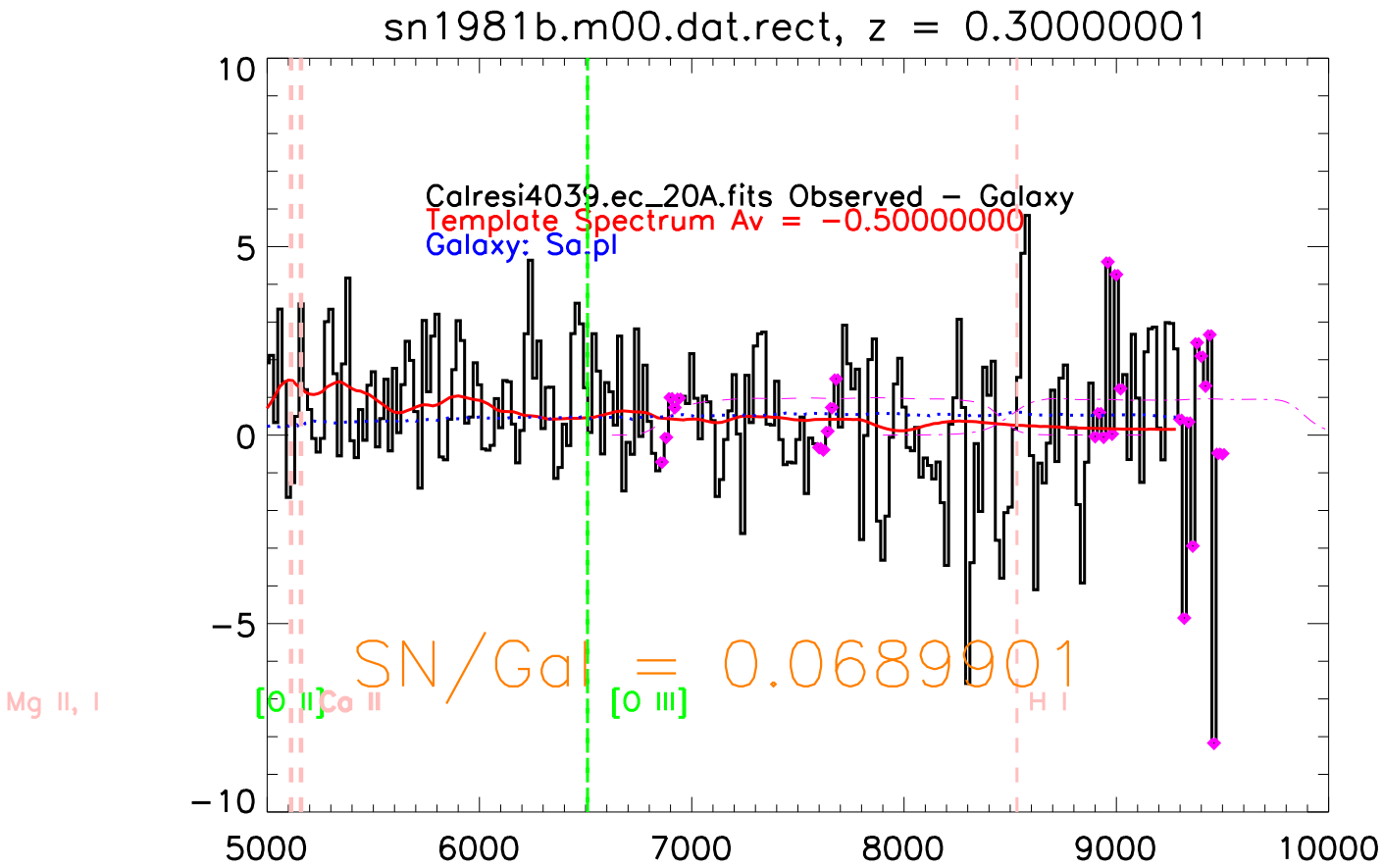

sn1999ee.m08.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = −0.44515306
Galaxy: Sa.pl
SN/Gal = 0.295755
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000

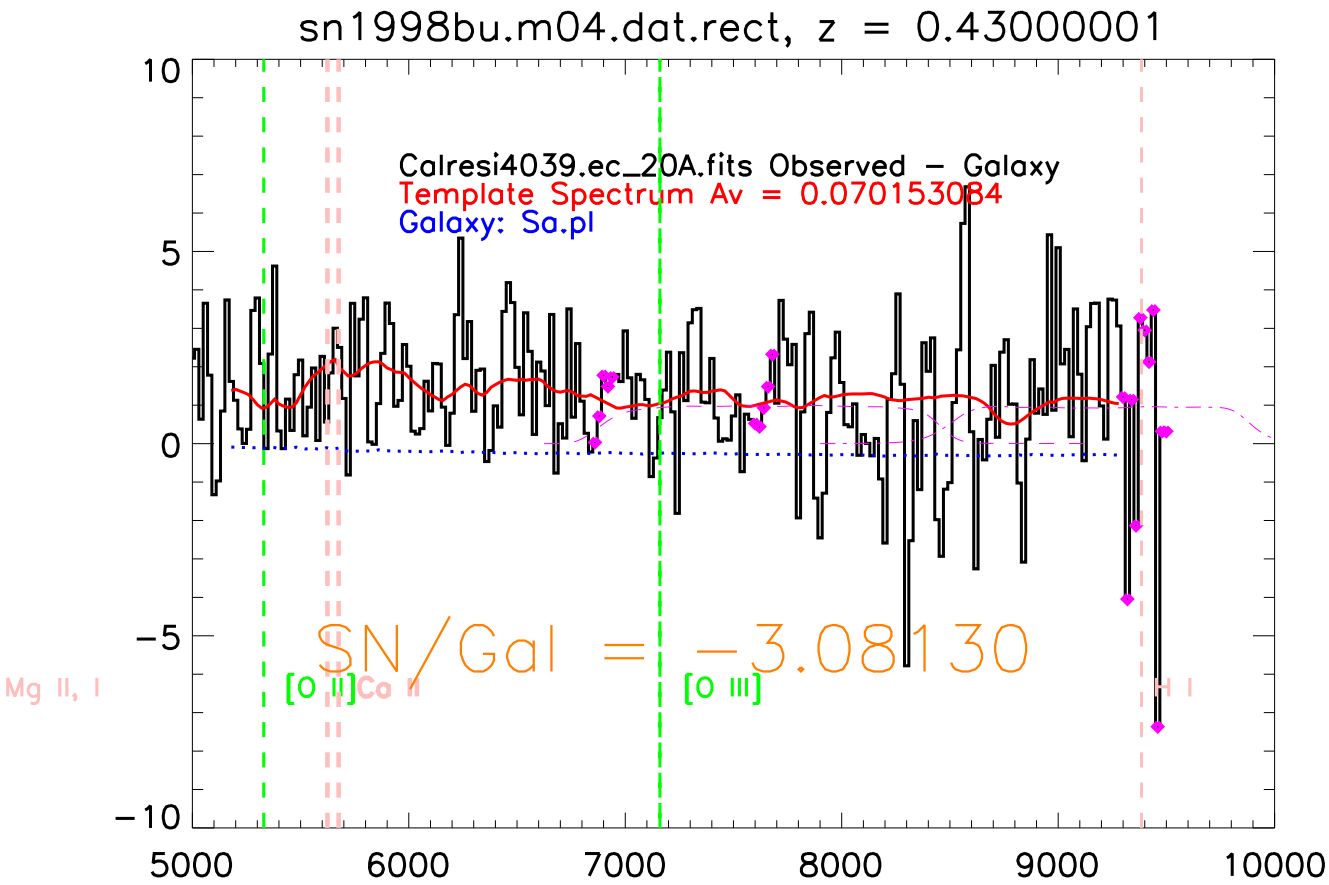

sn1989b.m01.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = −0.50000000
Galaxy: Sa.pl
SN/Gal = 1.22558
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000

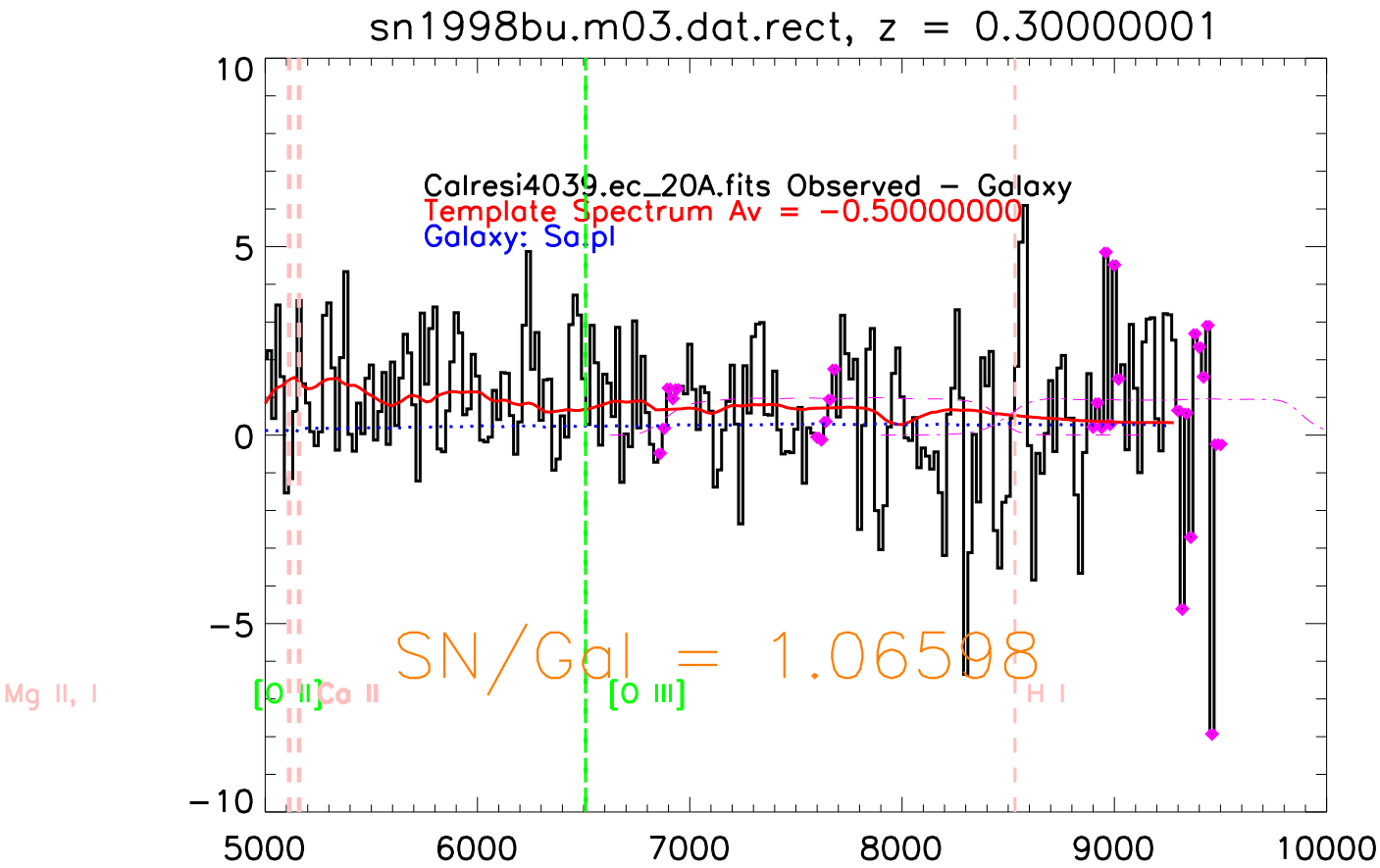

sn1996x.m00.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = −0.50000000
Galaxy: Sa pl
SN/Gal = 0.0853373
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000

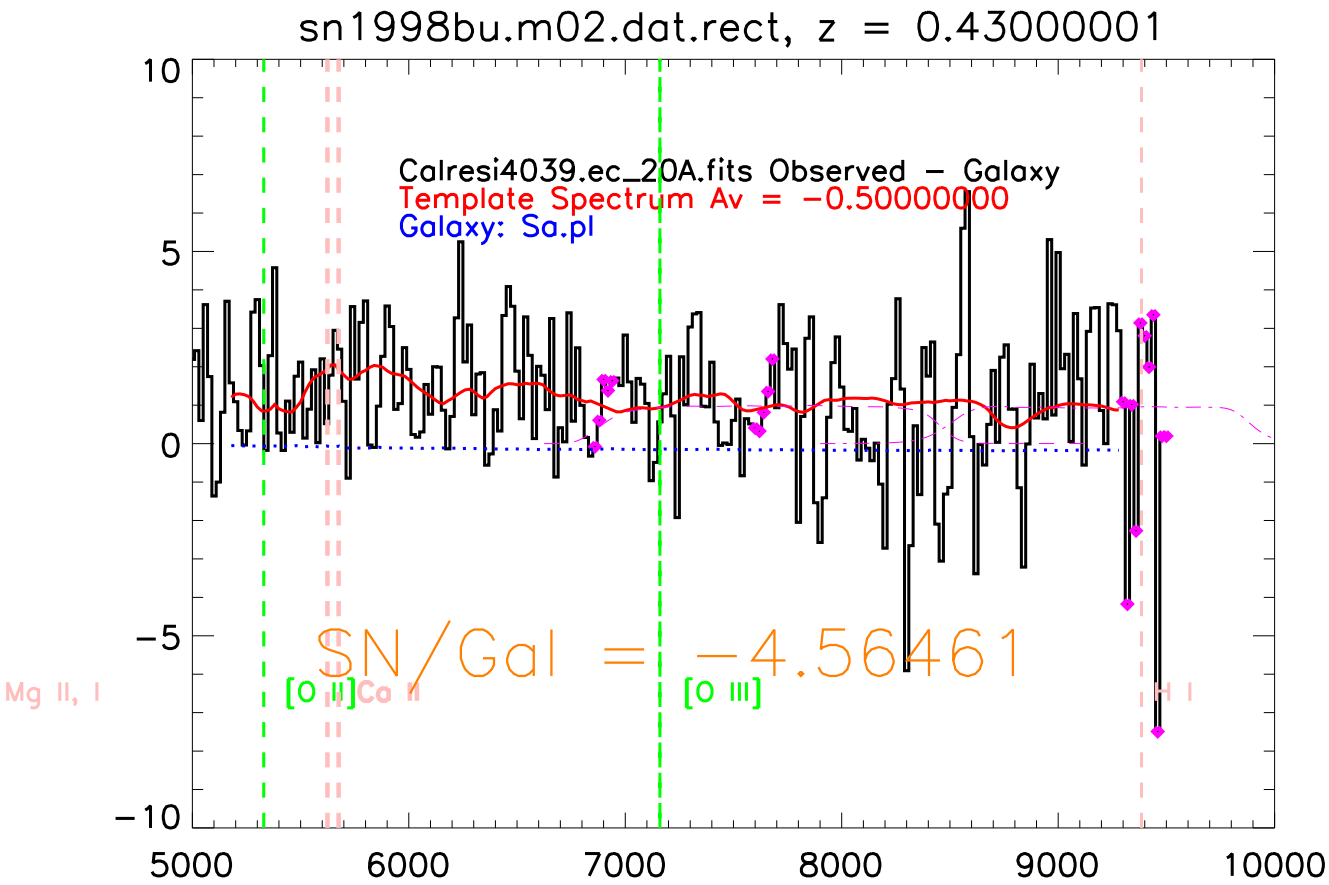

sn1996x.m02.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = −0.50000000
Galaxy: Sa.pl
SN/Gal = 0.151980
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000

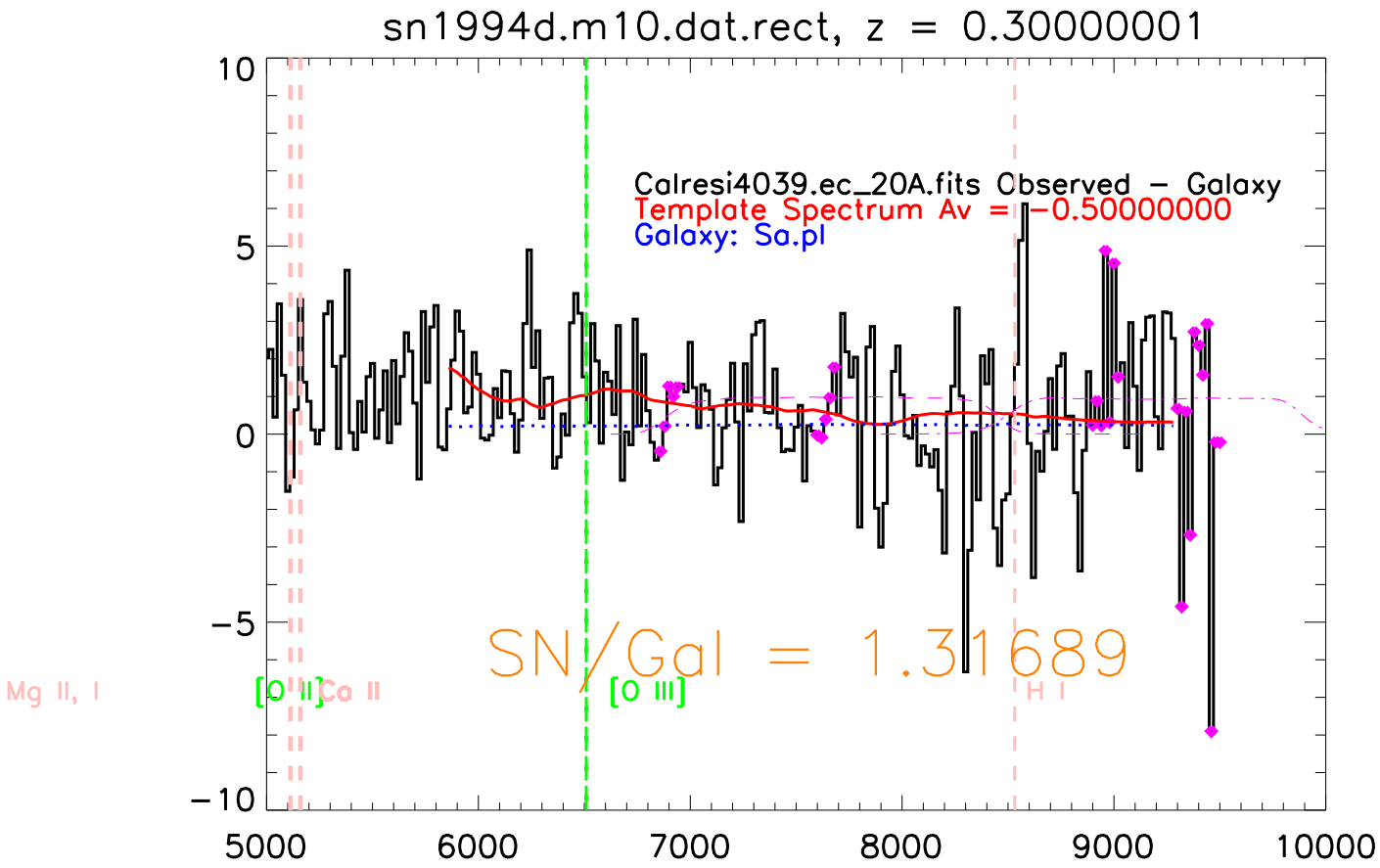

sn1989b.m07.dat.rect, z = 0.43000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 0.48596939
Galaxy: Sa.pl
SN/Gal = −2.45614
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000


sn1981b.m00.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = −0.50000000
Galaxy: Sa pl
SN/Gal = 0.0689901
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000


sn1998bu.m04.dat.rect, z = 0.43000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 0.070153084
Galaxy: Sa.pl
SN/Gal = −3.08130
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000


sn1998bu.m03.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = −0.50000000
Galaxy: Sa.pl
SN/Gal = 1.06598
Mg II, I
[O II]
Co II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000


sn1998bu.m02.dat.rect, z = 0.43000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = −0.50000000
Galaxy: Sa.pl
SN/Gal = −4.56461
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000


sn1994d.m10.dat.rect, z = 0.30000001
Calresi4039.ec_20A.fits Observed − Galaxy
Template Spectrum Av = −0.50000000
Galaxy: Sa.pl
SN/Gal = 1.31689
Mg II, I
[O II]
Ca II
[O III]
H I
10
5
0
−5
−10
5000
6000
7000
8000
9000
10000