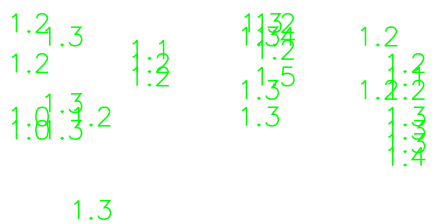
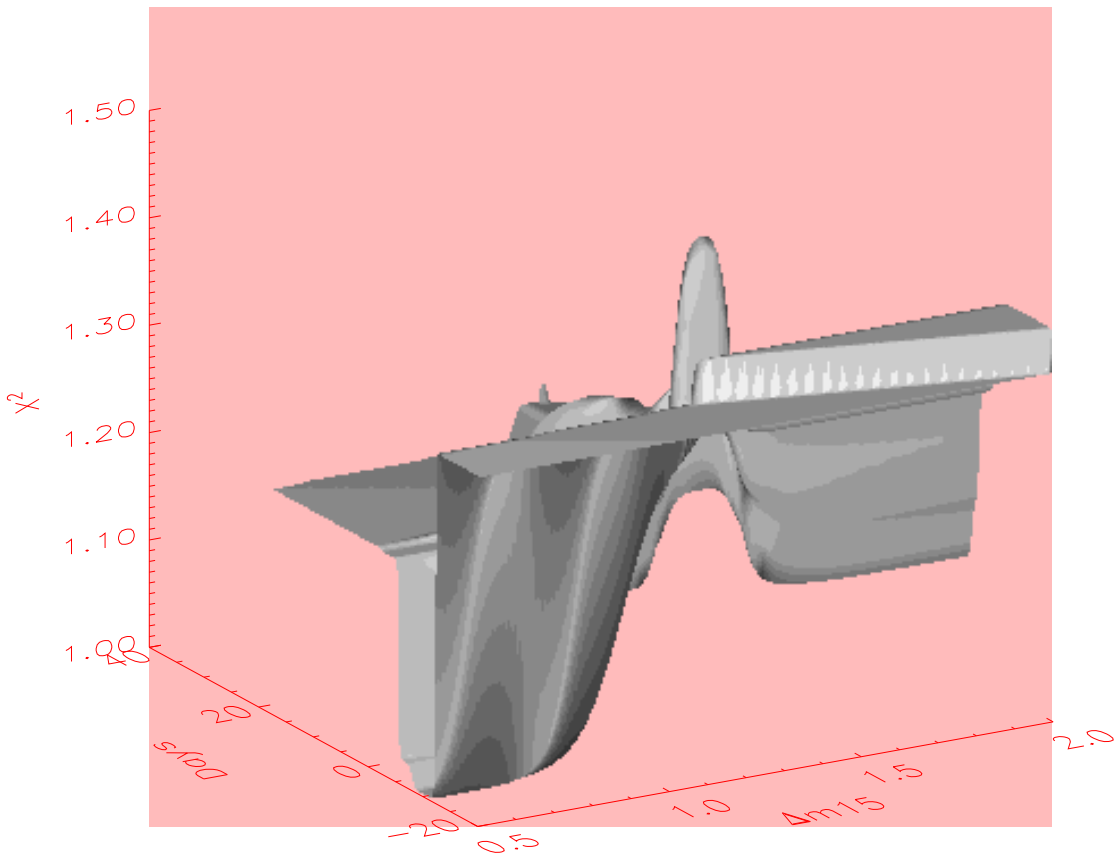
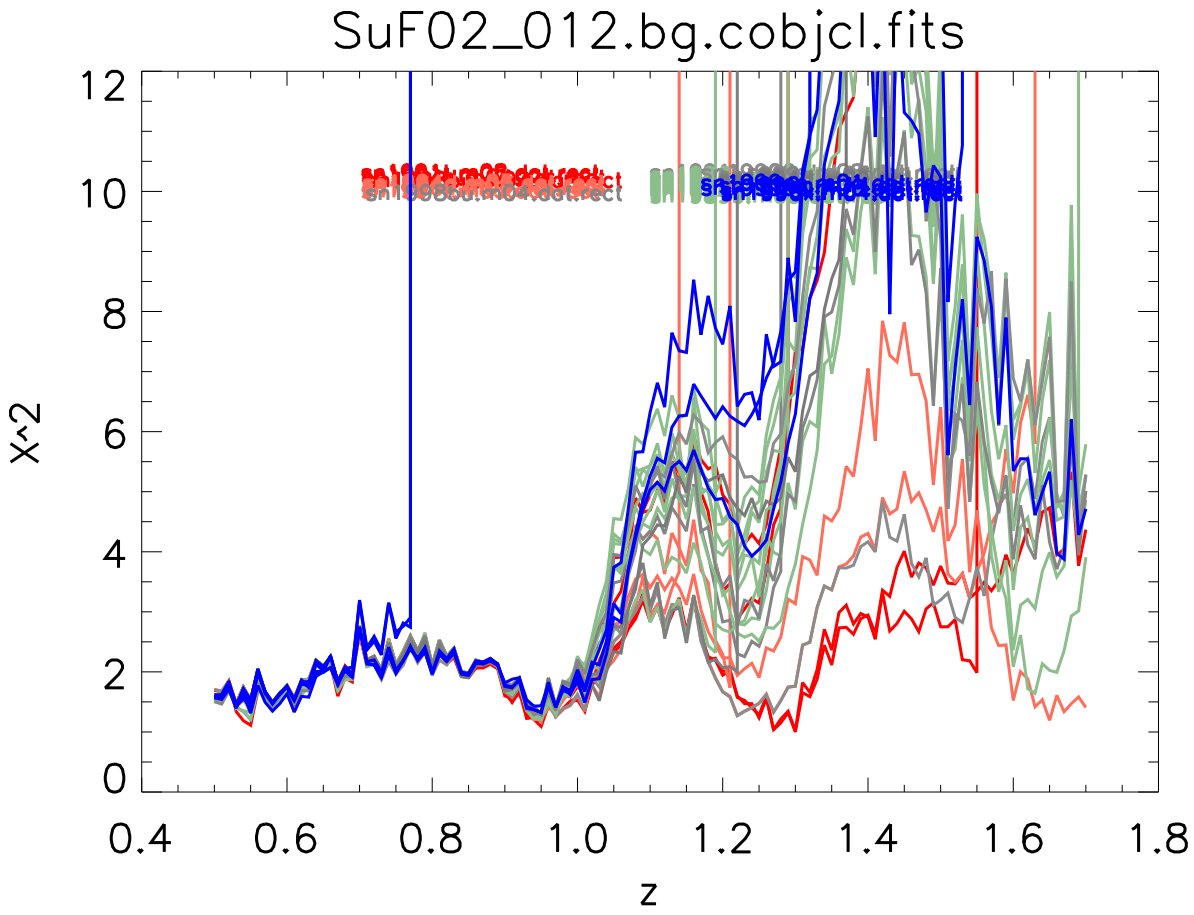
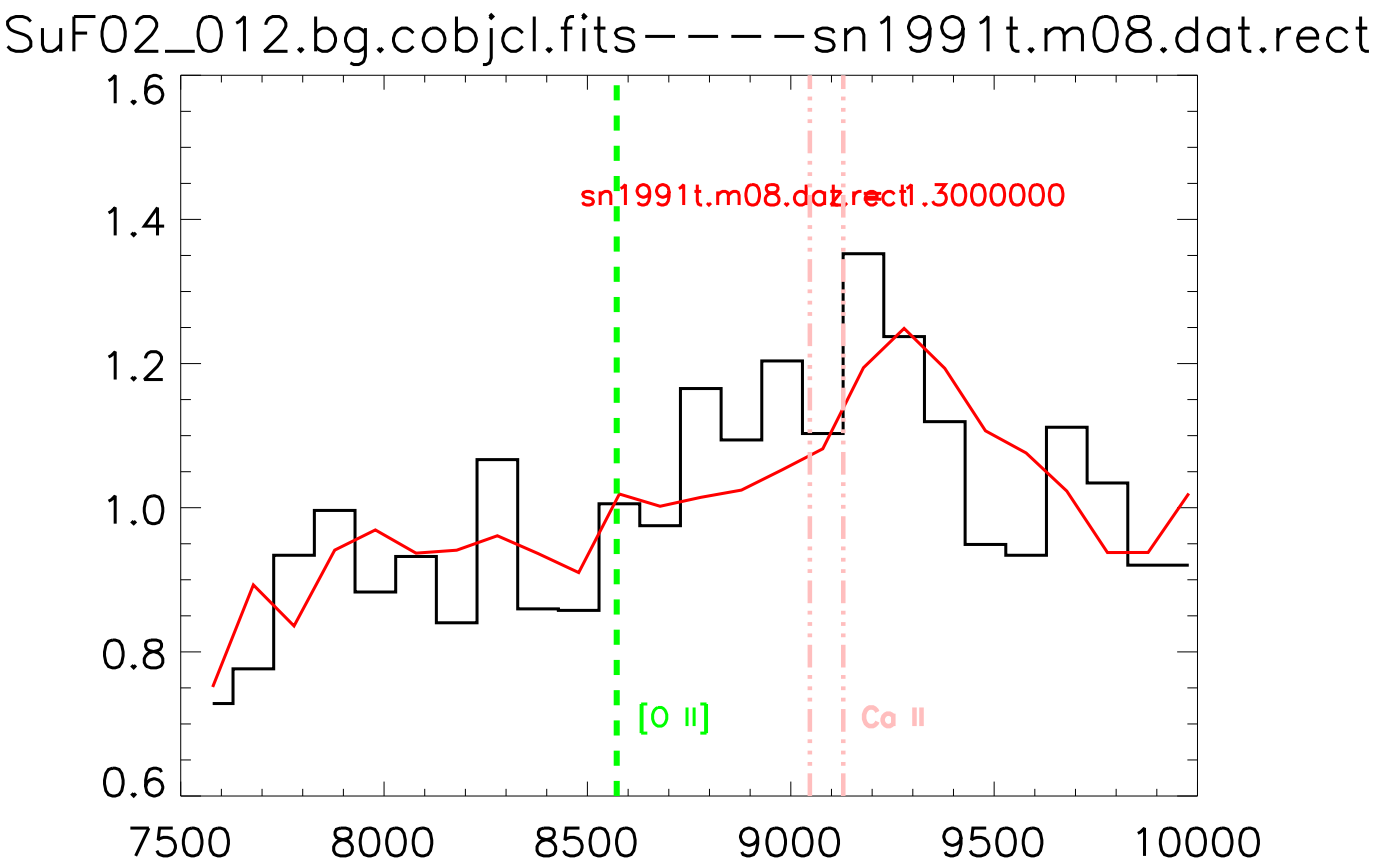


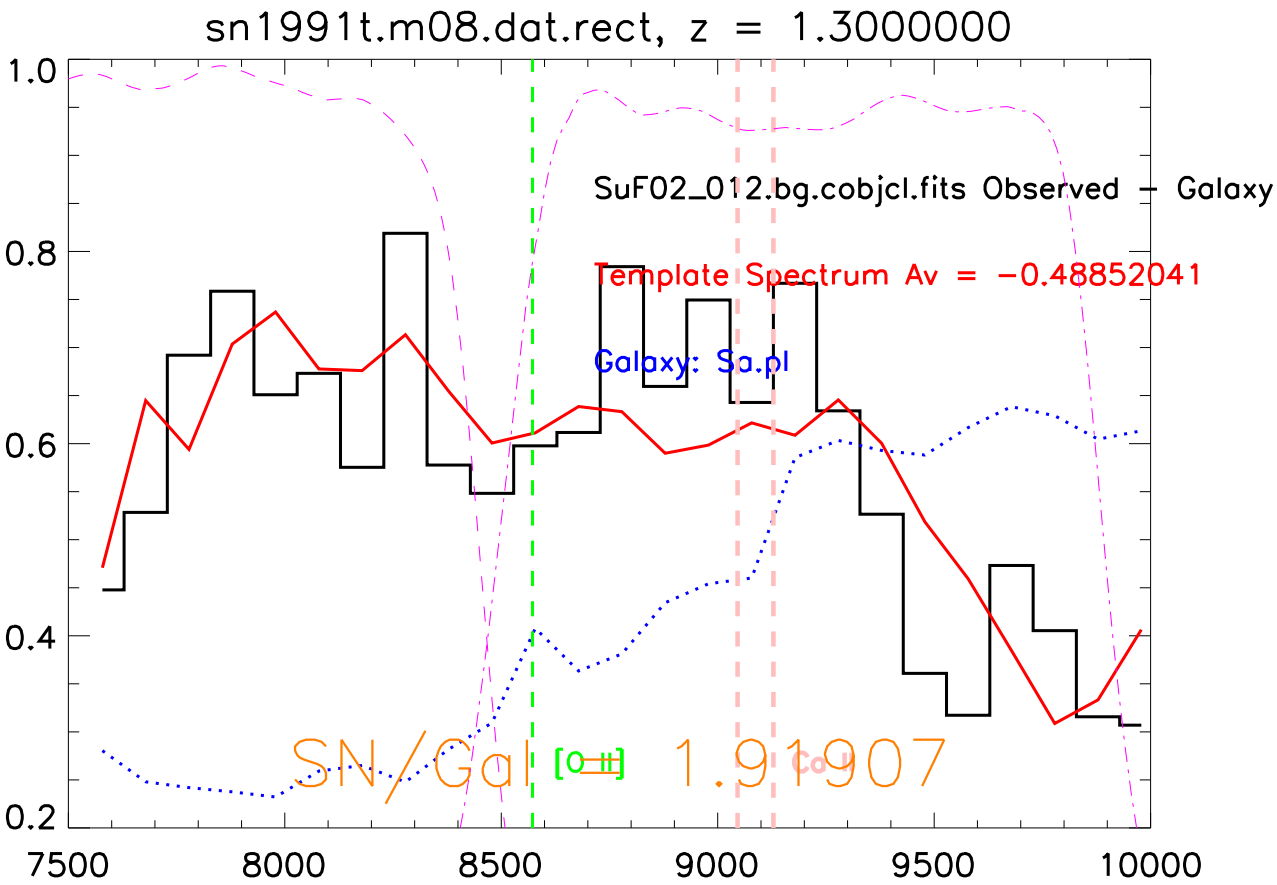


1.50
1.40
1.30
1.20
1.10
1.00
χ^2
40
20
0
−20
Days
0.5
1.0
1.5
2.0
Δm15


SuF02_012.bg.cobjcl.fits
X^2
z
0
2
4
6
8
10
12
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8


SuF02_012.bg.cobjcl.fits----sn1991t.m08.dat.rect
1.6
1.4
1.2
1.0
0.8
0.6
7500
8000
8500
9000
9500
10000
sn1991t.m08.dat.rect1.3000000
[O II]
Ca II

Mg II, I


sn1991t.m08.dat.rect, z = 1.3000000
SuF02_012.bg.cobjcl.fits Observed – Galaxy
Template Spectrum Av = −0.48852041
Galaxy: Sa.pl
SN/Gal
[O II]
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1.0
0.8
0.6
0.4
0.2
7500
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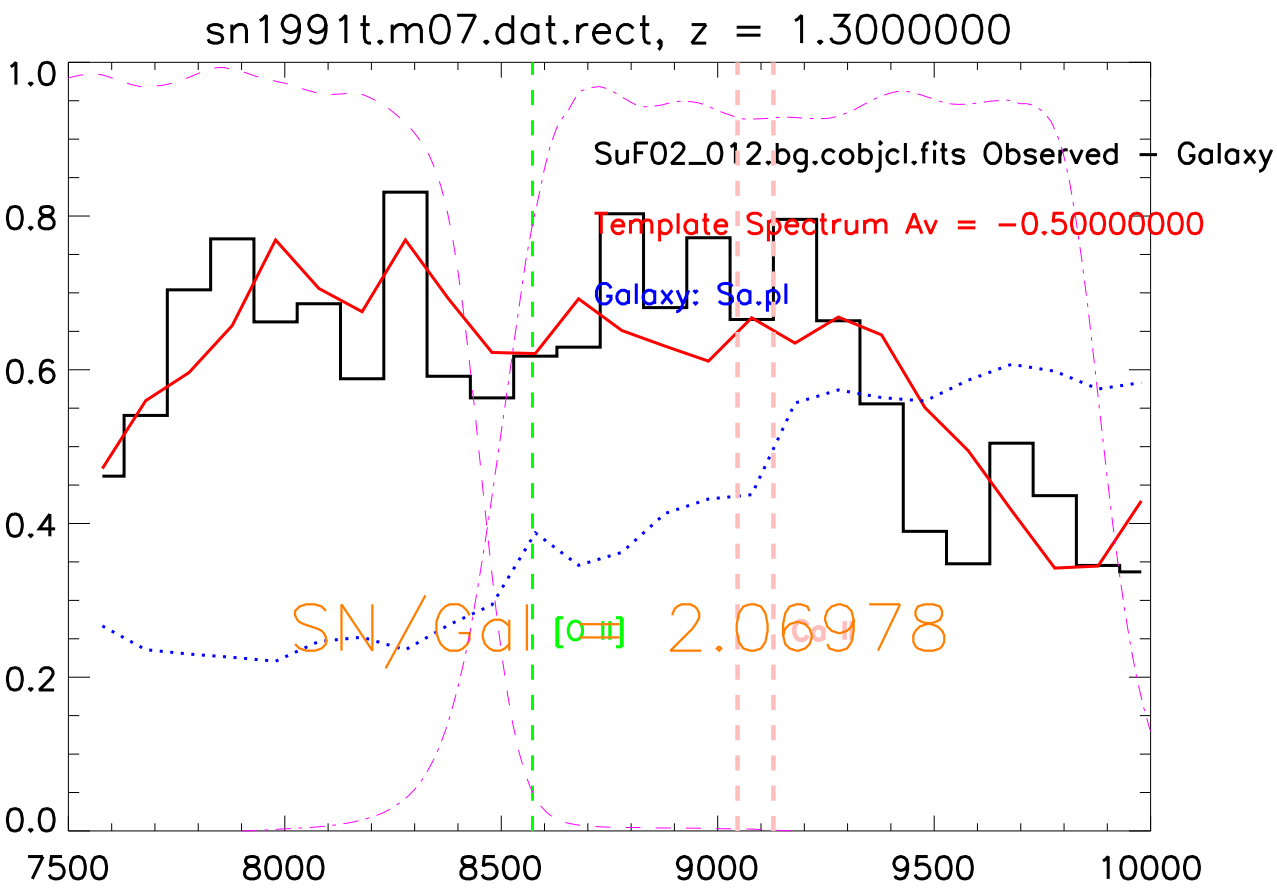
8500
9000
9500
10000


sn1991t.m07.dat.rect, z = 1.3000000
SuF02_012.bg.cobjcl.fits Observed – Galaxy
Template Spectrum Av = −0.50000000
Galaxy: Sa.pl
SN/Gal [O II] 2.06978
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0.8
0.6
0.4
0.2
0.0
7500
8000
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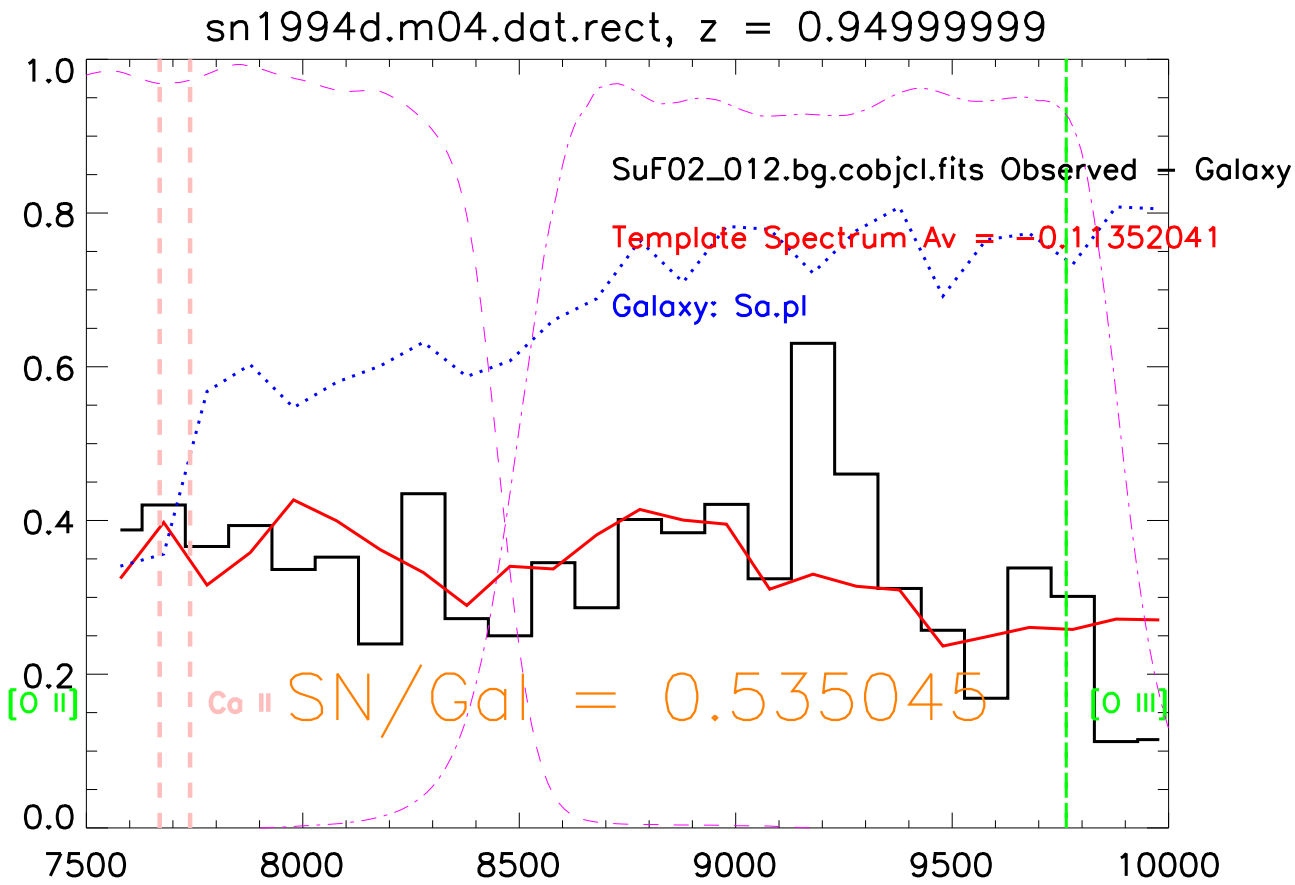
9000
9500
10000


sn1994d.m04.dat.rect, z = 0.94999999
SuF02_012.bg.cobjcl.fits Observed + Galaxy
Template Spectrum Av = 0.11352041
Galaxy: Sa.pl
SN/Gal = 0.535045
[O II]
Ca II
[O III]
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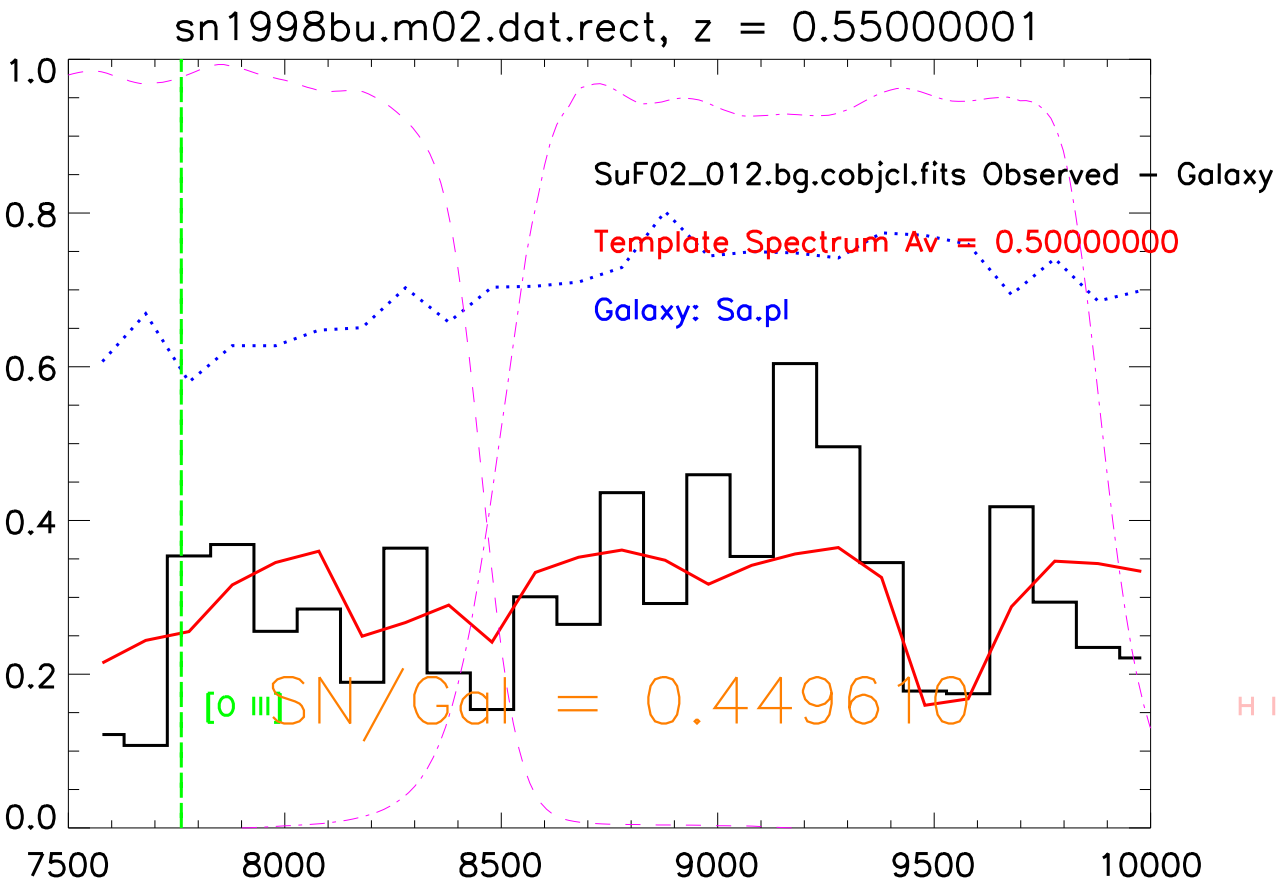
0.8
0.6
0.4
0.2
0.0
7500
8000
8500
9000
9500
10000


sn1998bu.m02.dat.rect, z = 0.55000001
SuF02_012.bg.cobjcl.fits Observed – Galaxy
Template Spectrum Av = 0.50000000
Galaxy: Sa.pl
[O III]
SN/Gal = 0.449610
H I
1.0
0.8
0.6
0.4
0.2
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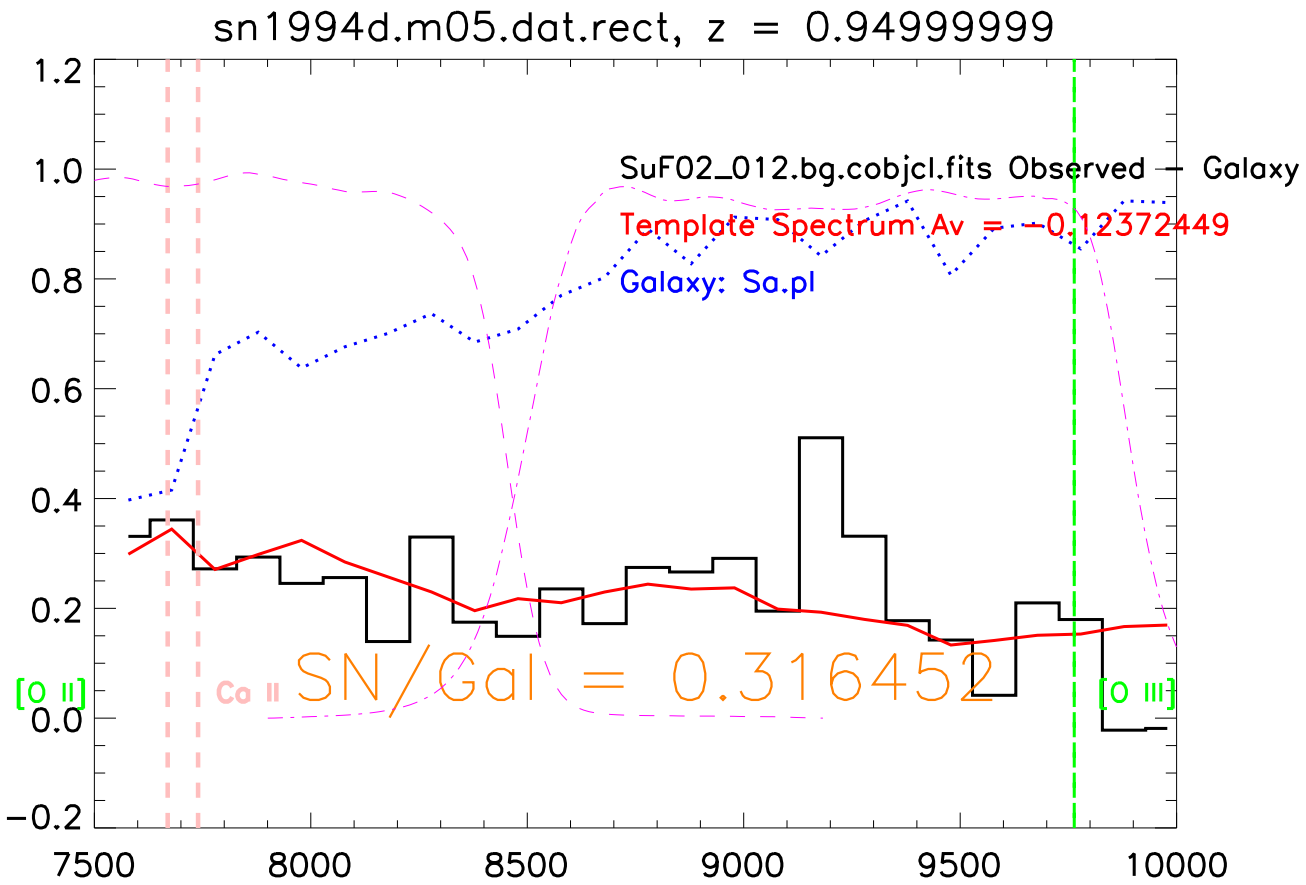
7500
8000
8500
9000
9500
10000


sn1994d.m05.dat.rect, z = 0.94999999
SuF02_012.bg.cobjcl.fits Observed
Galaxy
Template Spectrum Av = -0.12372449
Galaxy: Sa.pl
SN/Gal = 0.316452
[O II]
Ca II
[O III]
1.2
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
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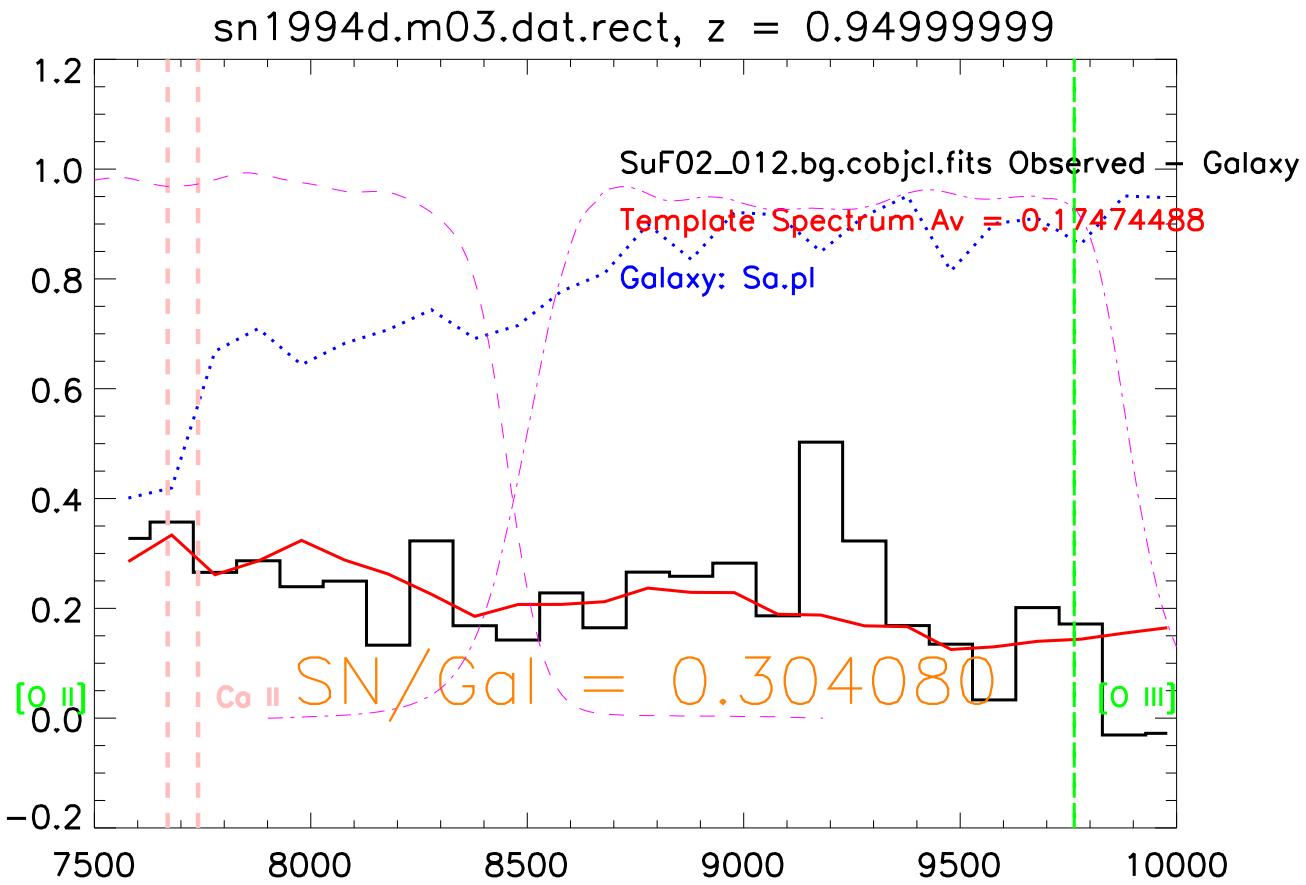
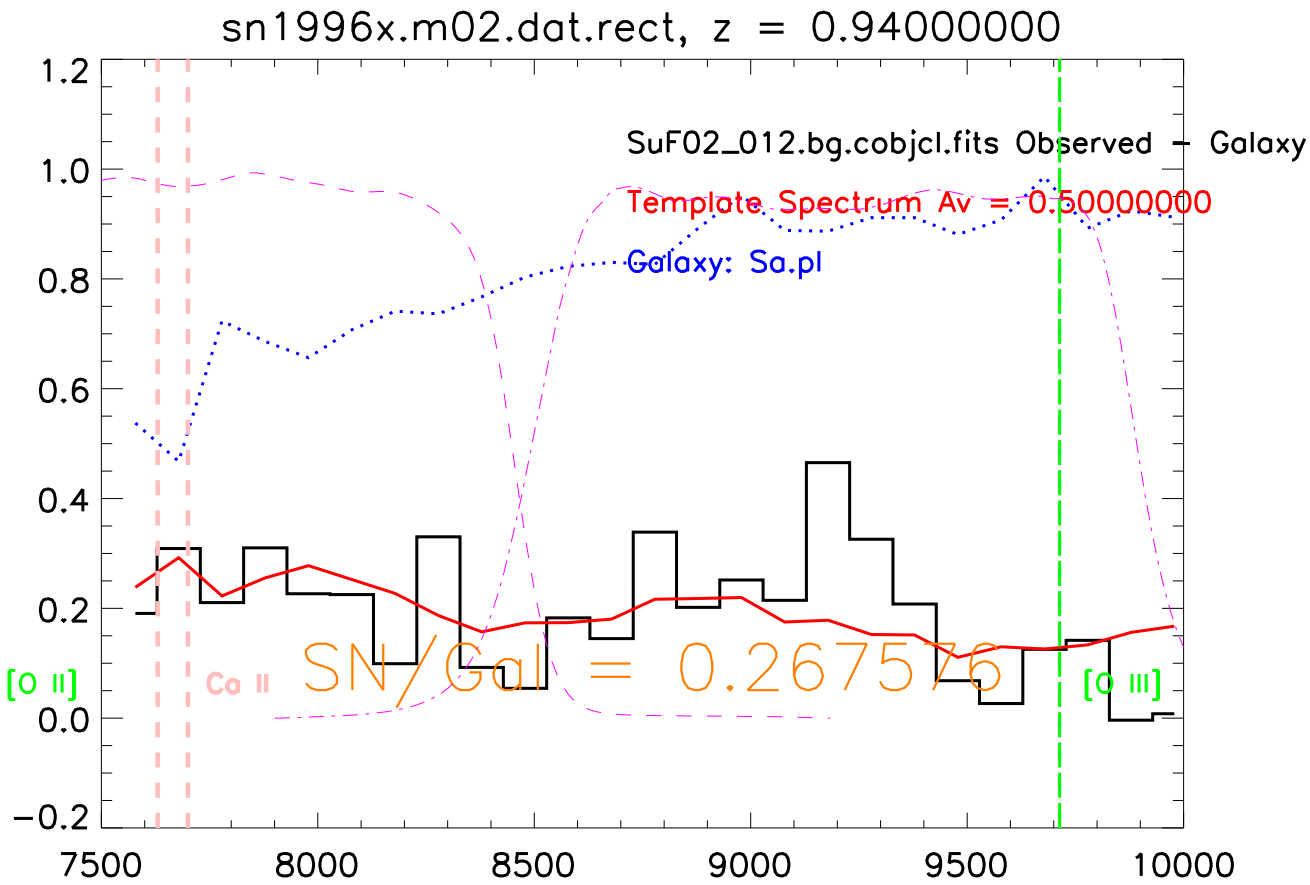
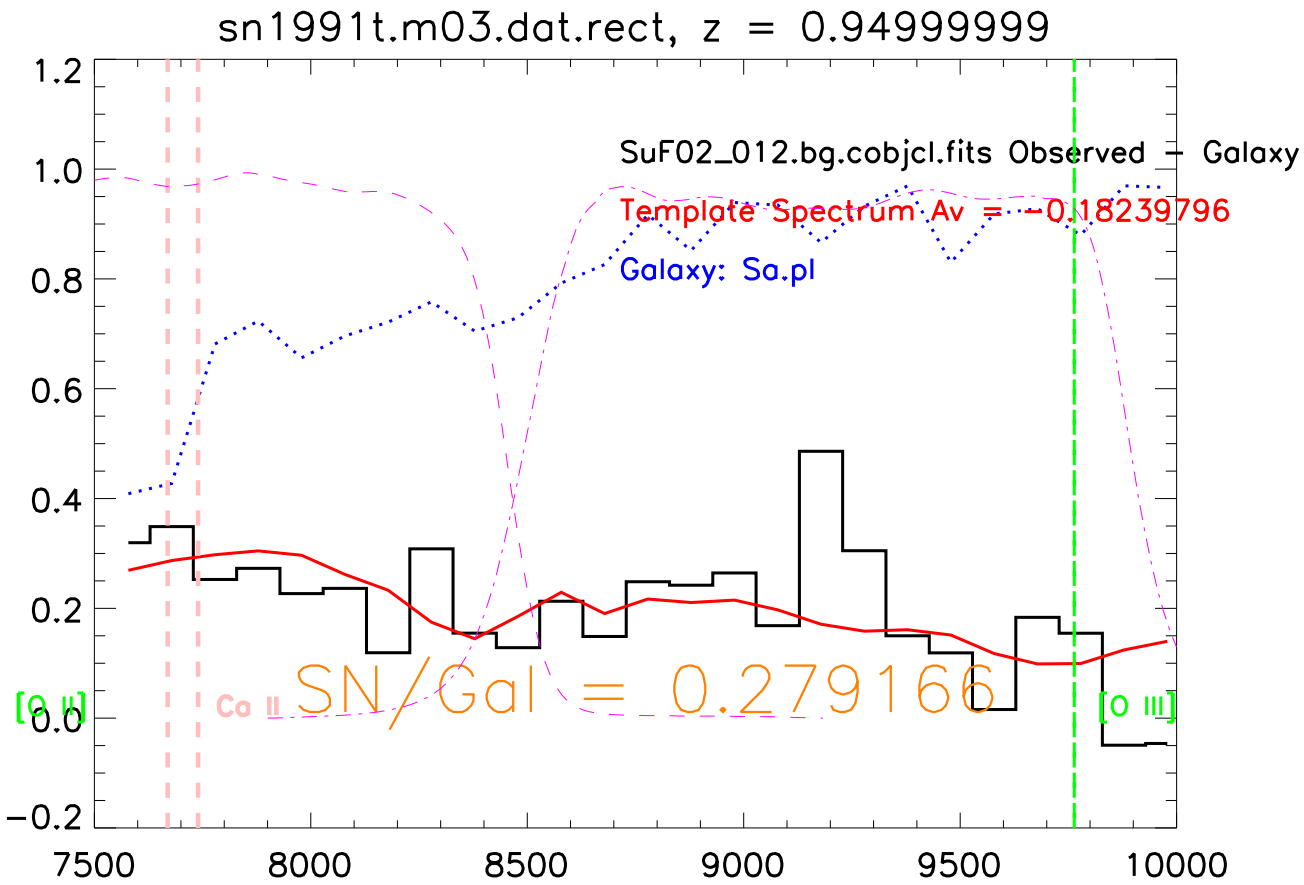
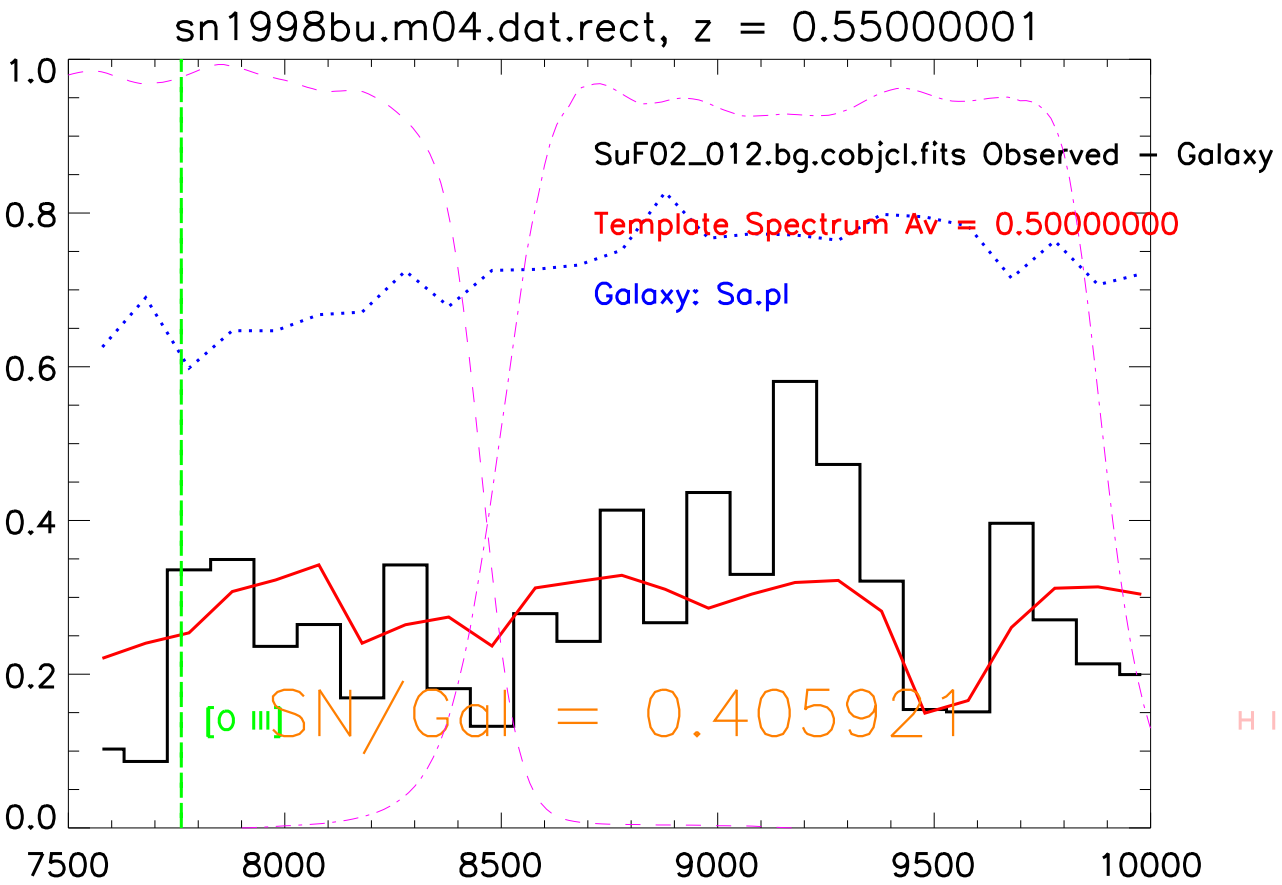
8000
8500
9000
9500
10000


sn1994d.m03.dat.rect, z = 0.94999999
SuF02_012.bg.cobjcl.fits Observed – Galaxy
Template Spectrum Av = 0.17474488
Galaxy: Sa.pl
SN/Gal = 0.304080
[O II]
Ca II
[O III]
1.2
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
7500
8000
8500
9000
9500
10000


sn1996x.m02.dat.rect, z = 0.94000000
SuF02_012.bg.cobjcl.fits Observed - Galaxy
Template Spectrum Av = 0.50000000
Galaxy: Sa.pl
SN/Gal = 0.267576
[O II]
Ca II
[O III]
1.2
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
7500
8000
8500
9000
9500
10000


sn1991t.m03.dat.rect, z = 0.94999999
SuF02_012.bg.cobjcl.fits Observed − Galaxy
Template Spectrum Av = −0.18239796
Galaxy: Sa.pl
SN/Gal = 0.279166
[O II]
Ca II
[O III]
1.2
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
7500
8000
8500
9000
9500
10000


sn1998bu.m04.dat.rect, z = 0.55000001
SuF02_012.bg.cobjcl.fits Observed - Galaxy
Template Spectrum Av = 0.50000000
Galaxy: Sa.pl
[O III]
SN/Gal = 0.405921
H I
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0.8
0.6
0.4
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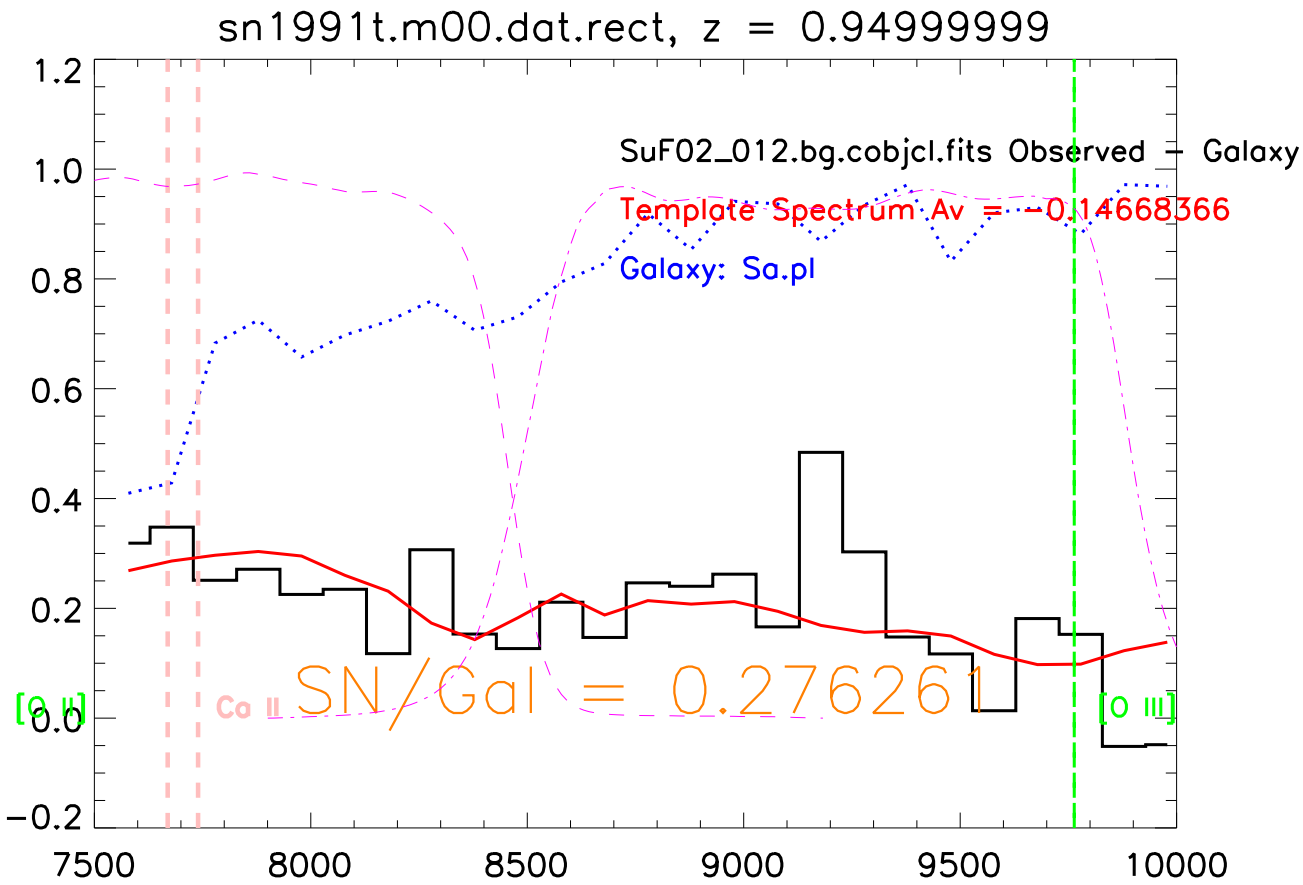
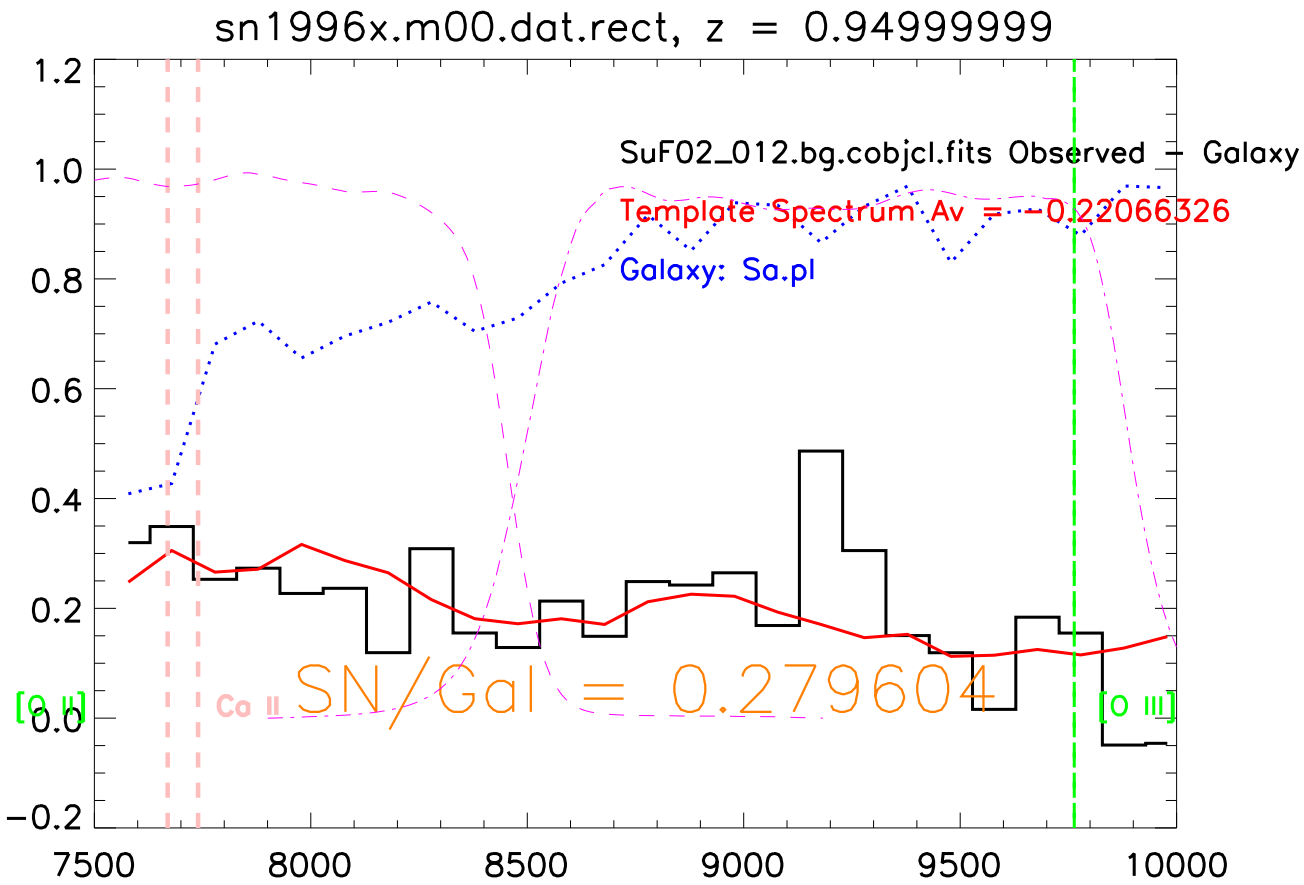
7500
8000
8500
9000
9500
10000


sn1991t.m00.dat.rect, z = 0.94999999
SuF02_012.bg.cobjcl.fits Observed − Galaxy
Template Spectrum Av = −0.14668366
Galaxy: Sa.pl
SN/Gal = 0.276261
[O II]
Co II
[O III]
1.2
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
7500
8000
8500
9000
9500
10000


sn1996x.m00.dat.rect, z = 0.94999999
SuF02_012.bg.cobjcl.fits Observed − Galaxy
Template Spectrum Av = −0.22066326
Galaxy: Sa.pl
SN/Gal = 0.279604
[O II]
Ca II
[O III]
1.2
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
7500
8000
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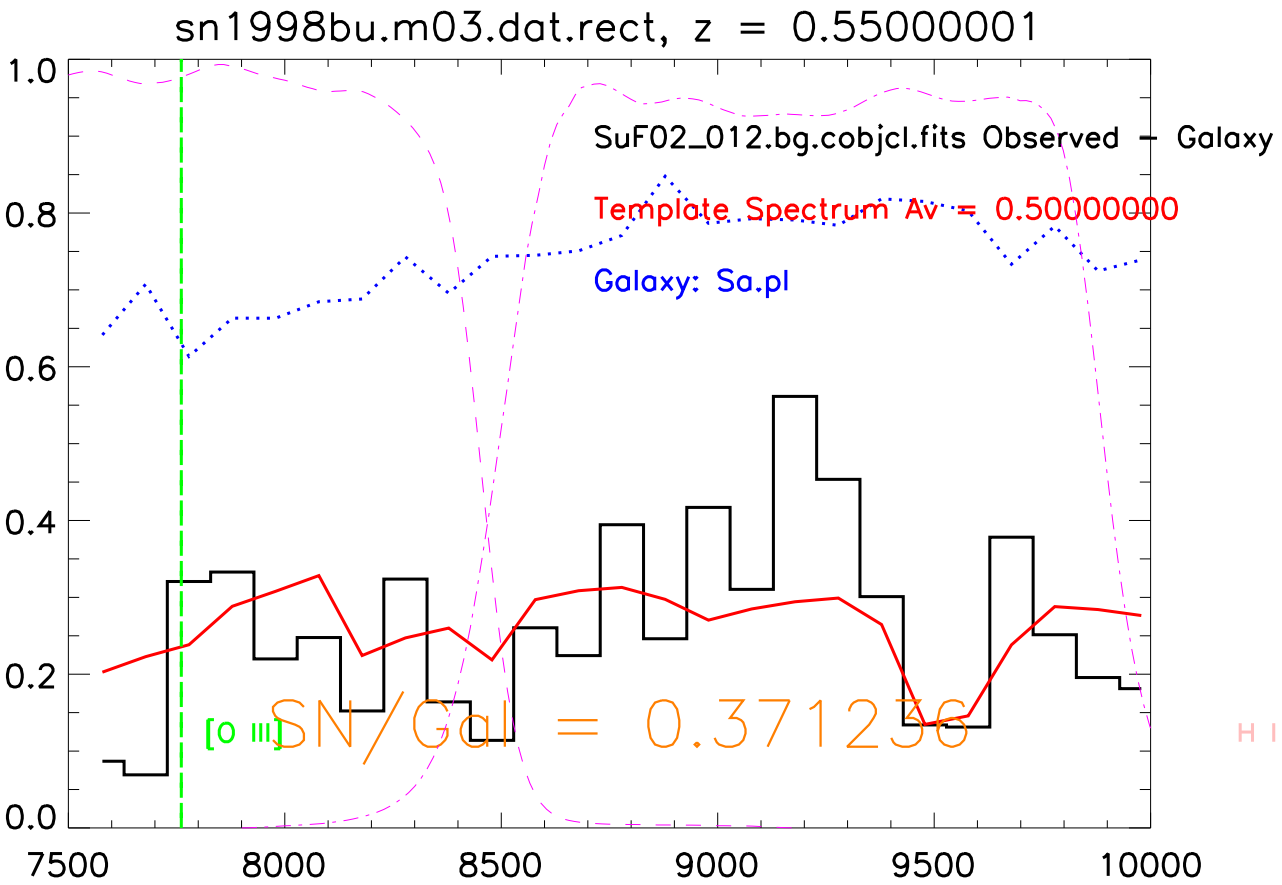
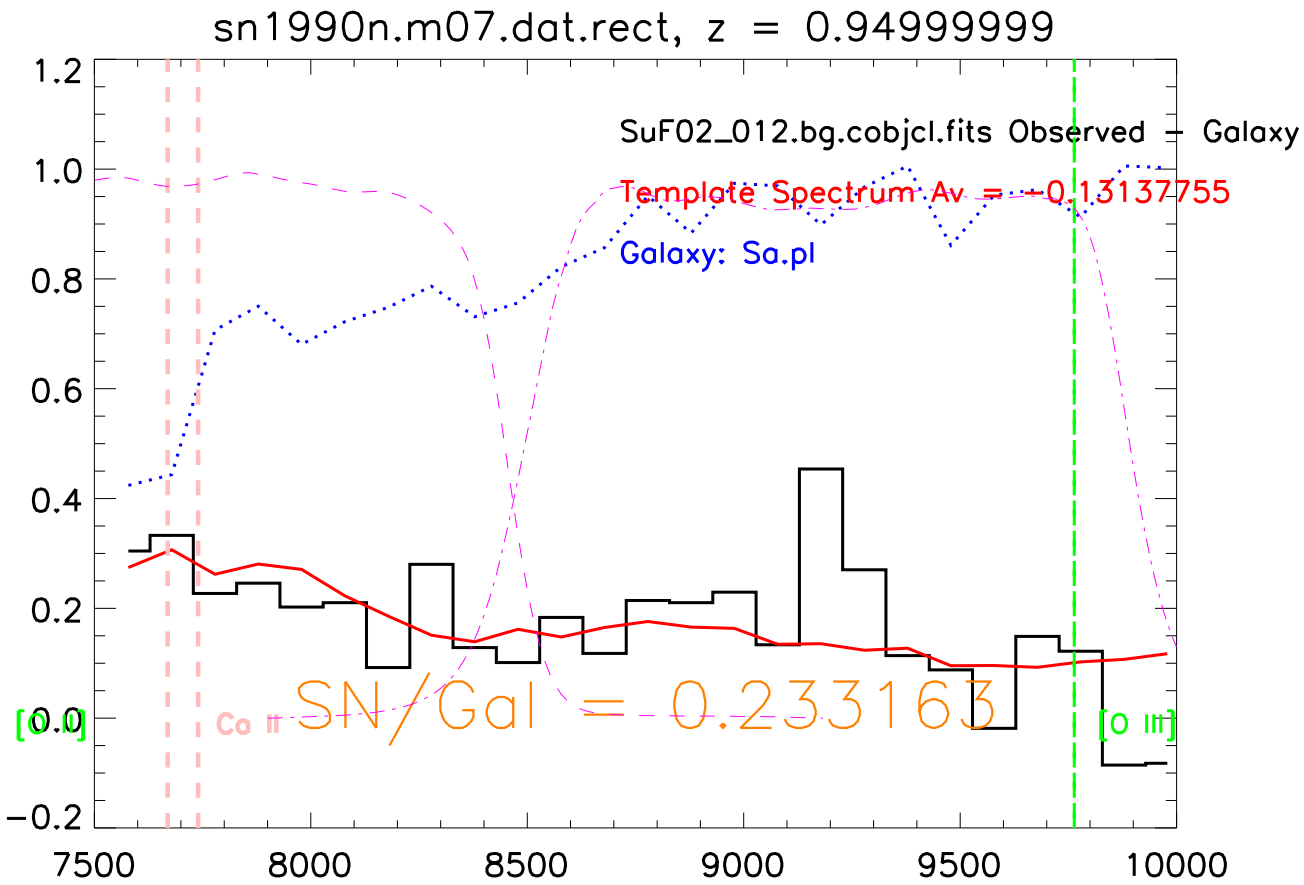
9000
9500
10000


sn1998bu.m03.dat.rect, z = 0.55000001
SuF02_012.bg.cobjcl.fits Observed
Galaxy
Template Spectrum Av = 0.50000000
Galaxy: Sa.pl
SN/Gal = 0.371236
[O III]
H I
1.0
0.8
0.6
0.4
0.2
0.0
7500
8000
8500
9000
9500
10000


sn1990n.m07.dat.rect, z = 0.94999999
SuF02_012.bg.cobjcl.fits Observed – Galaxy
Template Spectrum Av = -0.13137755
Galaxy: Sa.pl
SN/Gal = 0.233163
Ca II
[O II]
[O II]
1.2
1.0
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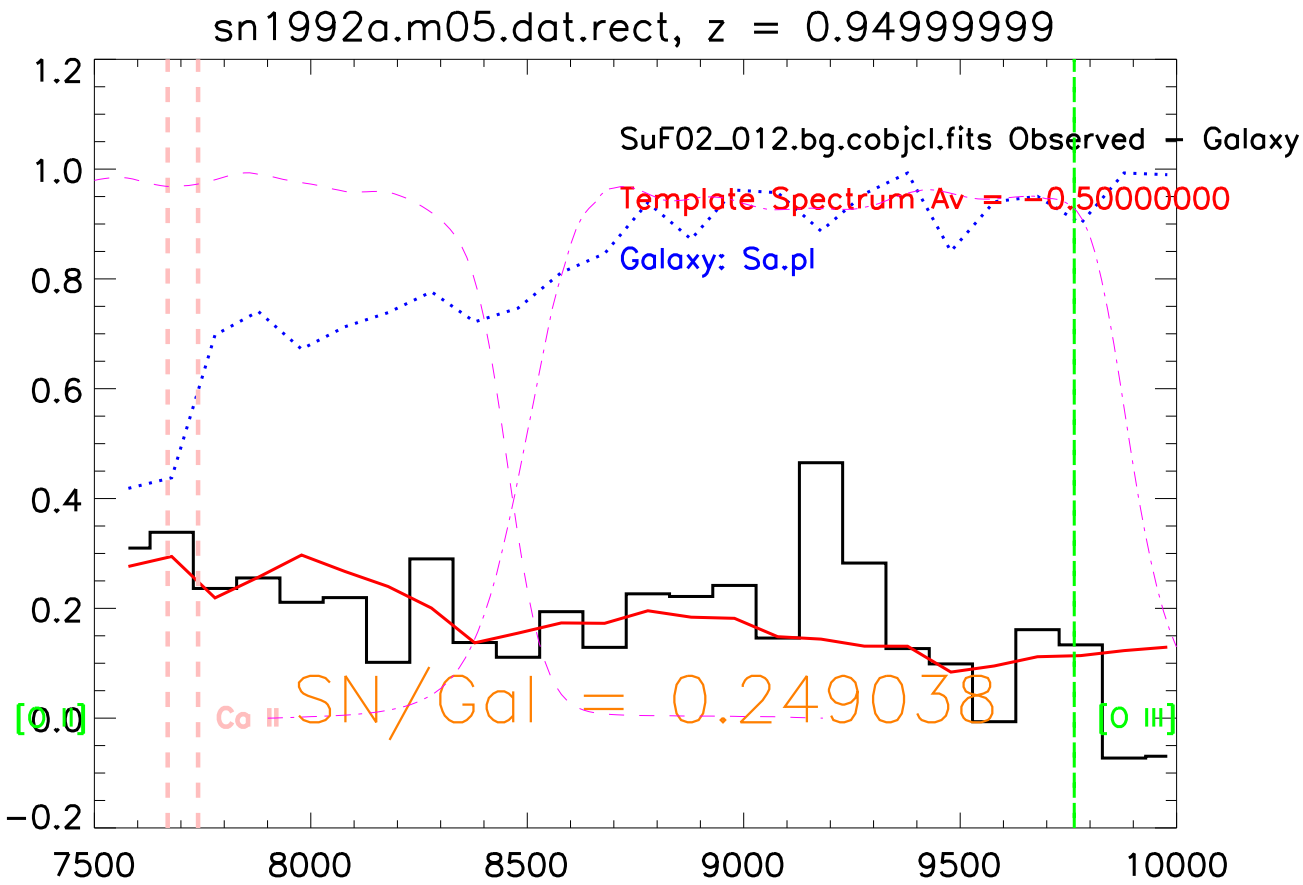
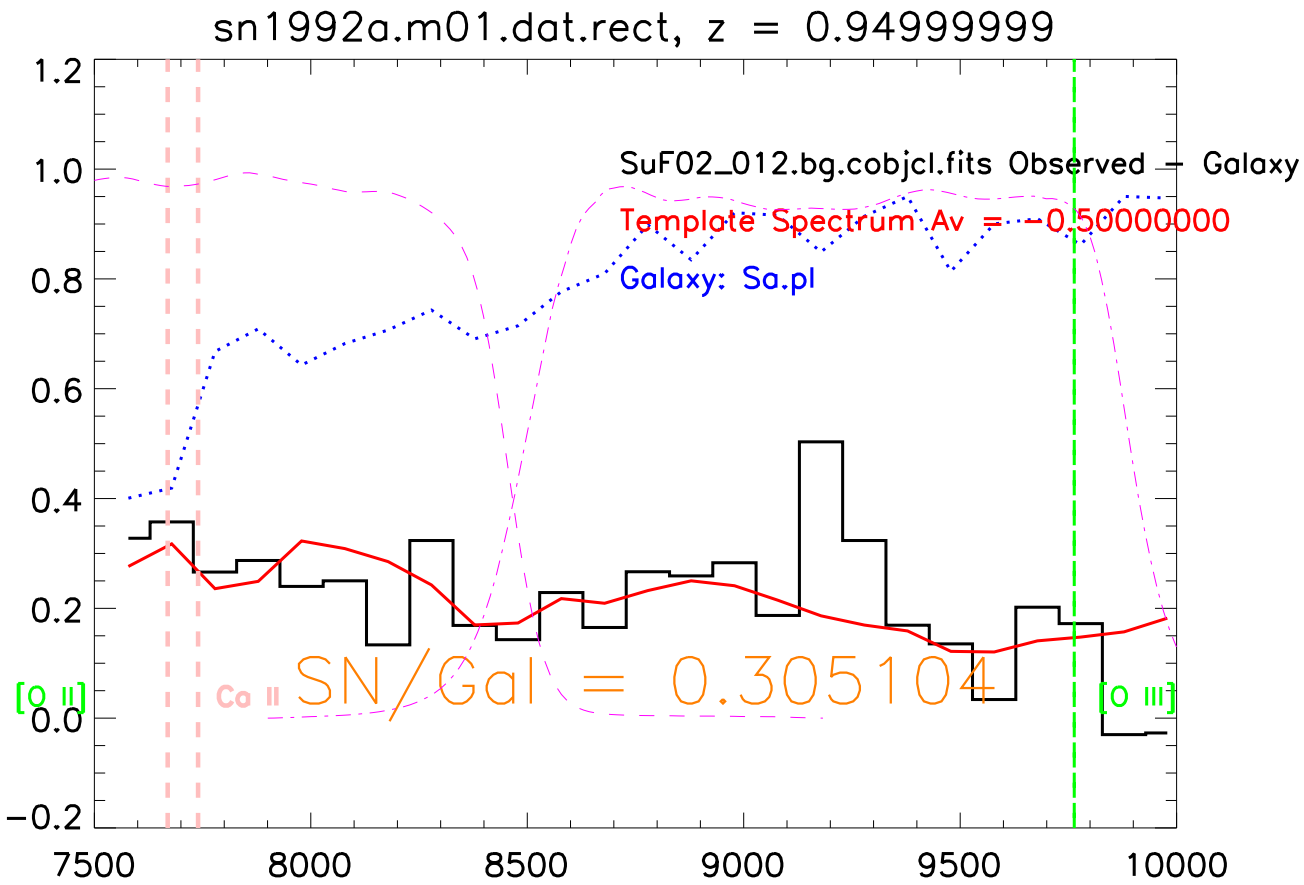
0.6
0.4
0.2
0.0
−0.2
7500
8000
8500
9000
9500
10000


sn1992a.m05.dat.rect, z = 0.94999999
SuF02_012.bg.cobjcl.fits Observed – Galaxy
Template Spectrum Av = 0.50000000
Galaxy: Sa.pl
SN/Gal = 0.249038
Ca II
[O II]
1.2
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
7500
8000
8500
9000
9500
10000


sn1992a.m01.dat.rect, z = 0.94999999
SuF02_012.bg.cobjcl.fits Observed – Galaxy
Template Spectrum Av = 0.50000000
Galaxy: Sa.pl
SN/Gal = 0.305104
[O II]
Ca II
[O III]
1.2
1.0
0.8
0.6
0.4
0.2
0.0
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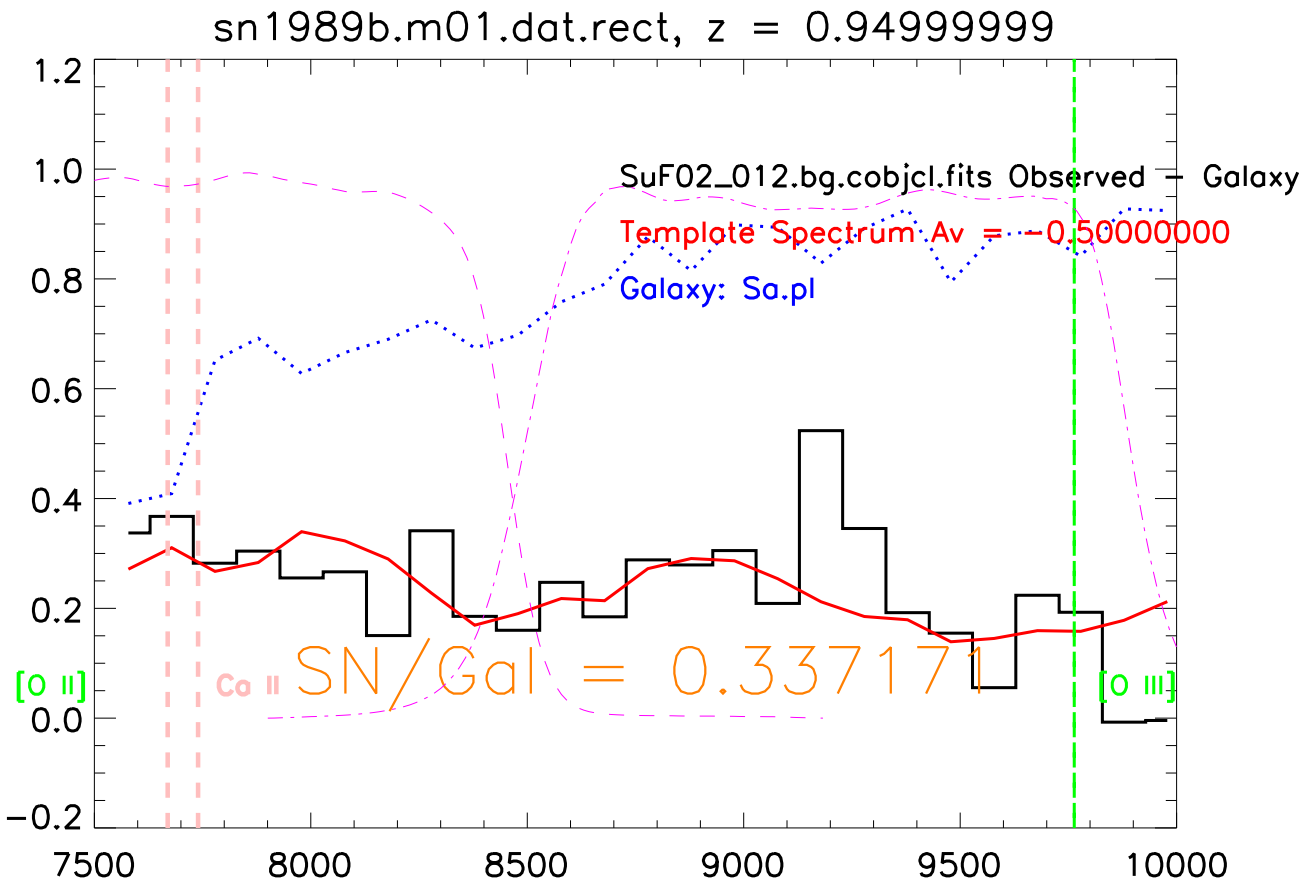
7500
8000
8500
9000
9500
10000


sn1989b.m01.dat.rect, z = 0.94999999
SuF02_012.bg.cobjcl.fits Observed − Galaxy
Template Spectrum Av = −0.50000000
Galaxy: Sa.pl
SN/Gal = 0.337171
[O II]
Ca II
[O III]
1.2
1.0
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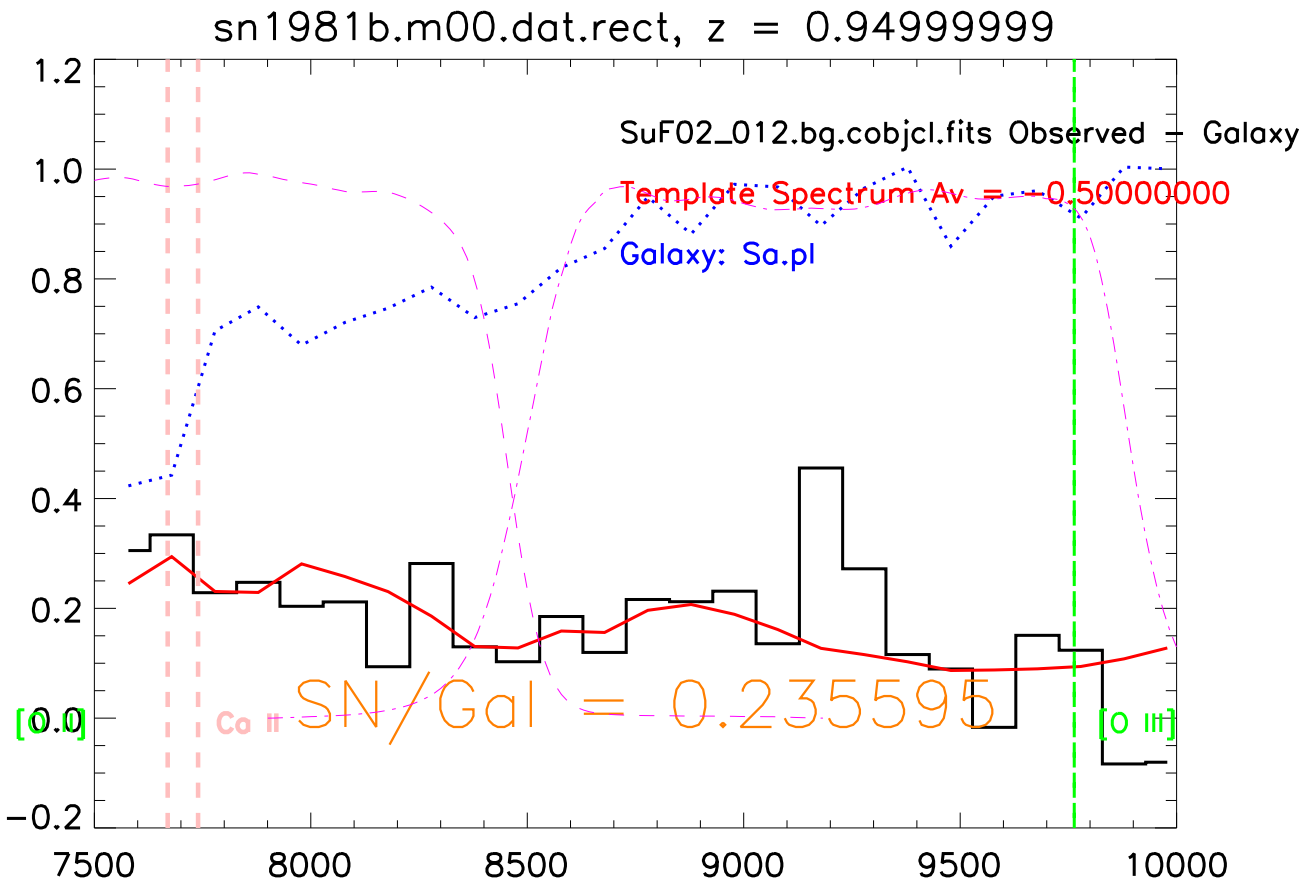
0.6
0.4
0.2
0.0
−0.2
7500
8000
8500
9000
9500
10000


sn1981b.m00.dat.rect, z = 0.94999999
SuF02_012.bg.cobjcl.fits Observed – Galaxy
Template Spectrum Av = 0.50000000
Galaxy: Sa.pl
SN/Gal = 0.235595
[O II]
Ca II
[O II]
1.2
1.0
0.8
0.6
0.4
0.2
0.0
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7500
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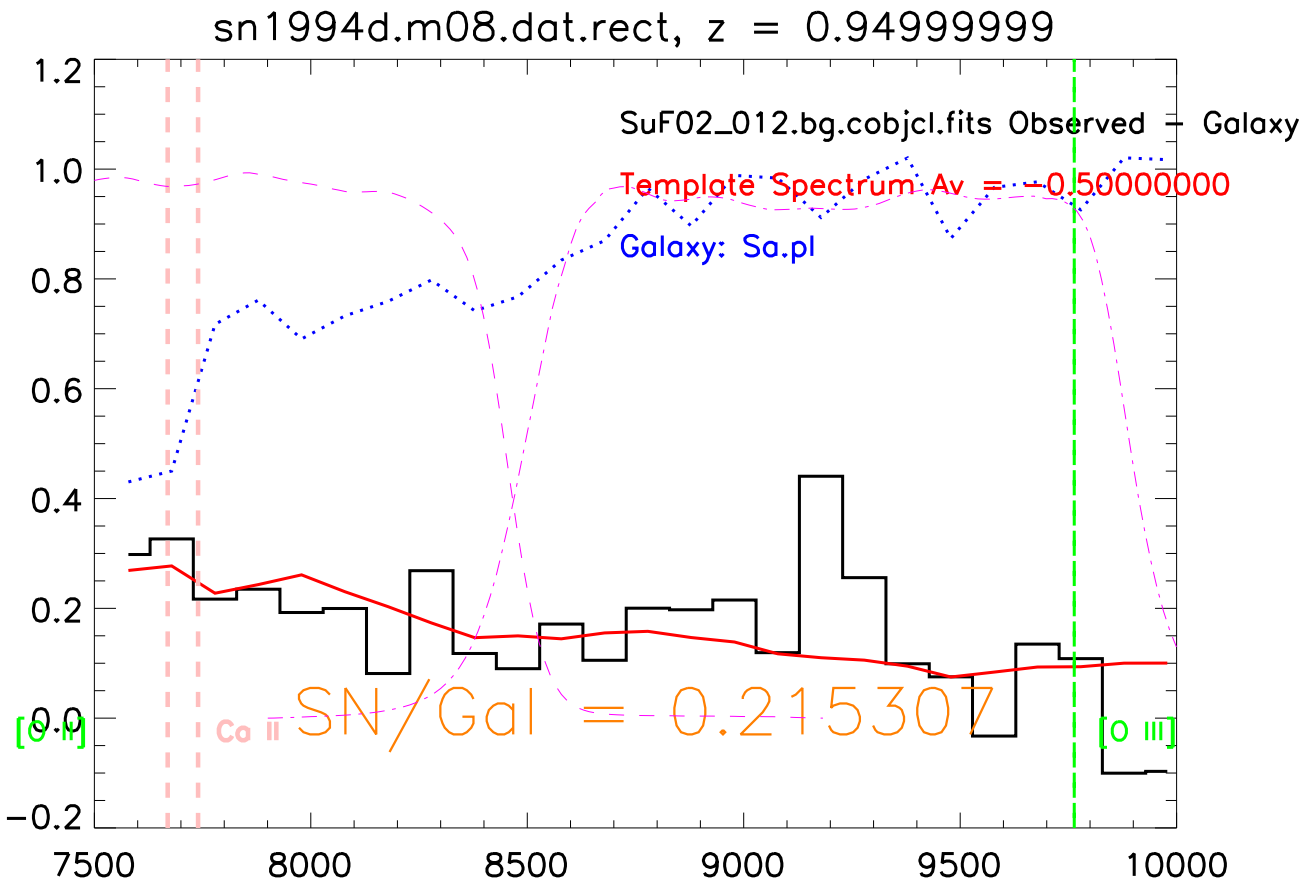
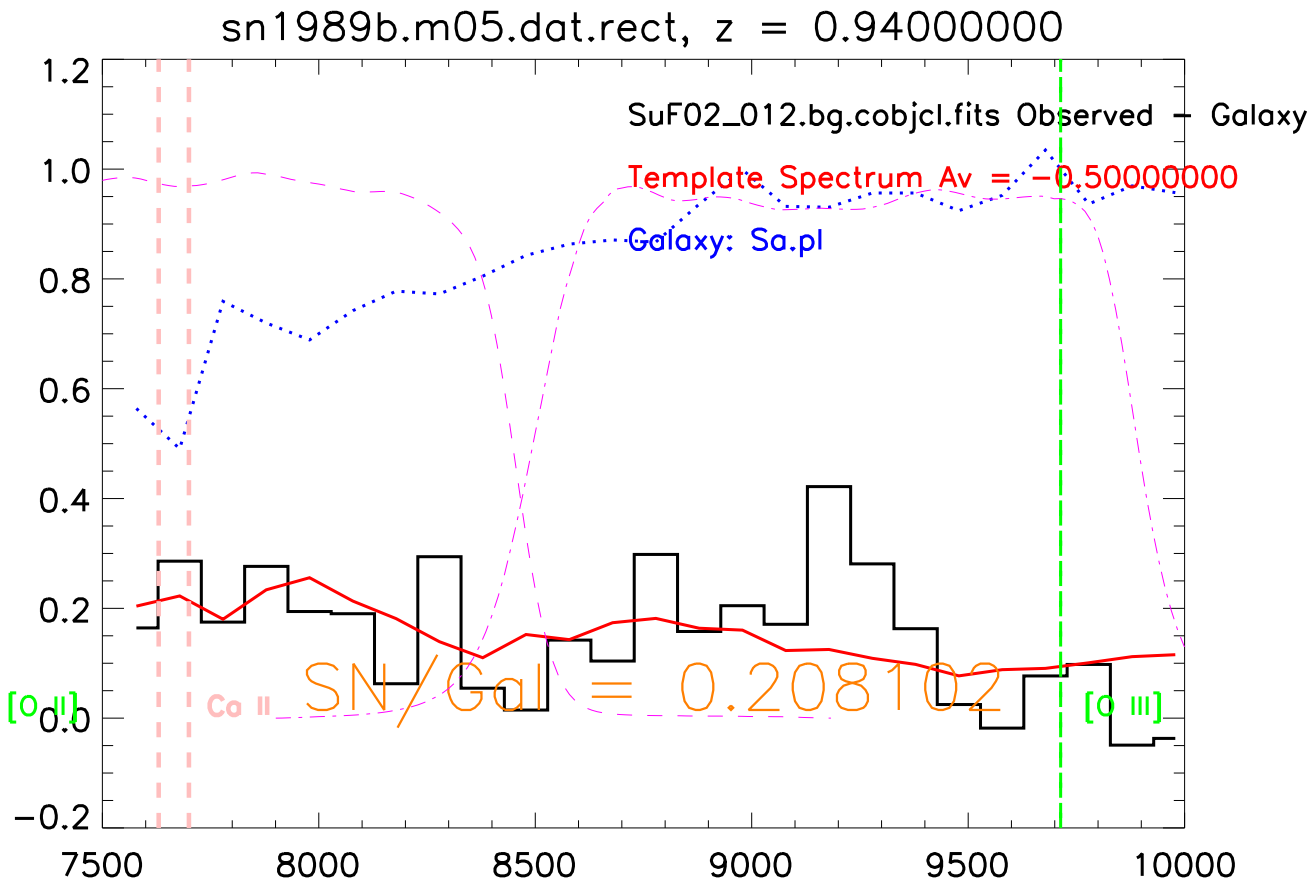
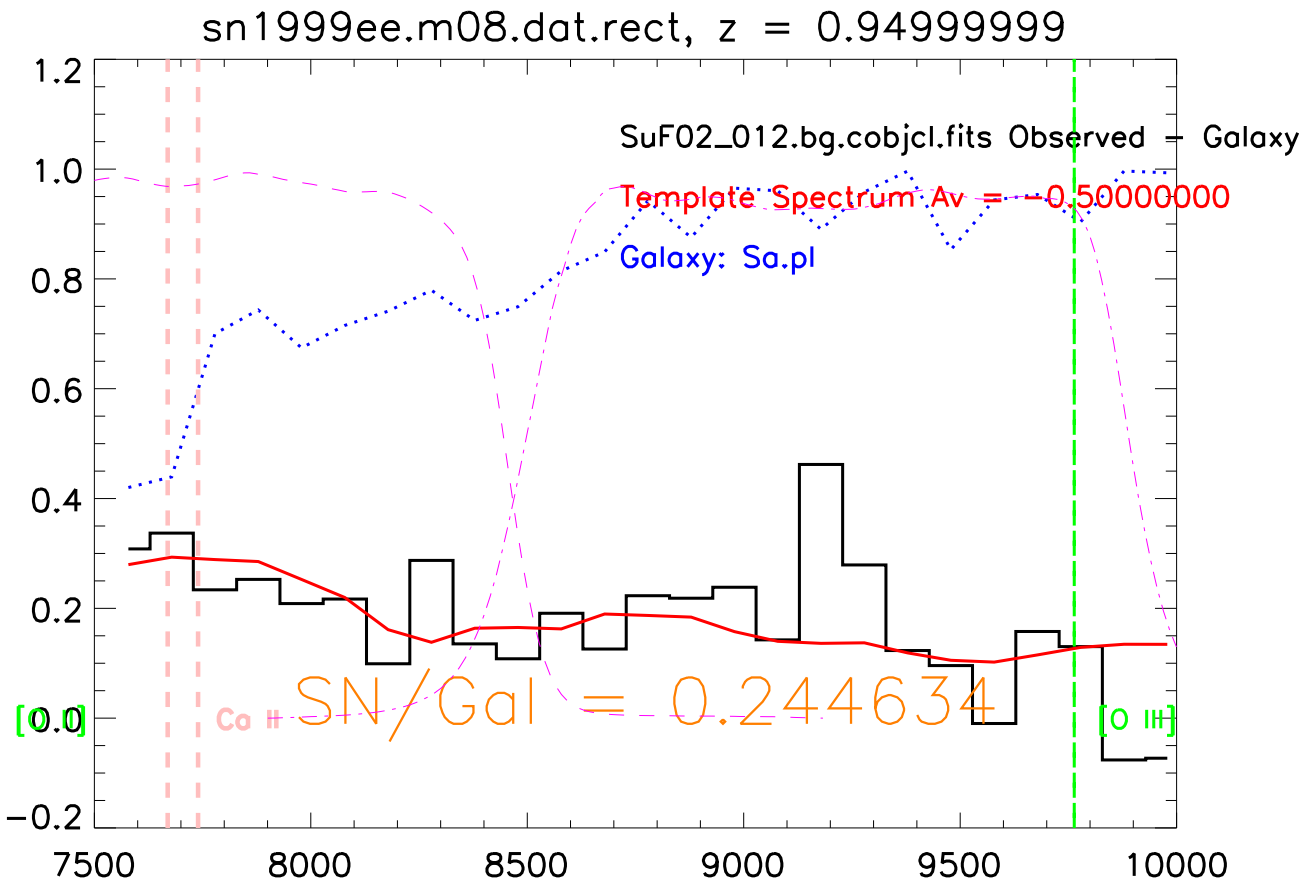
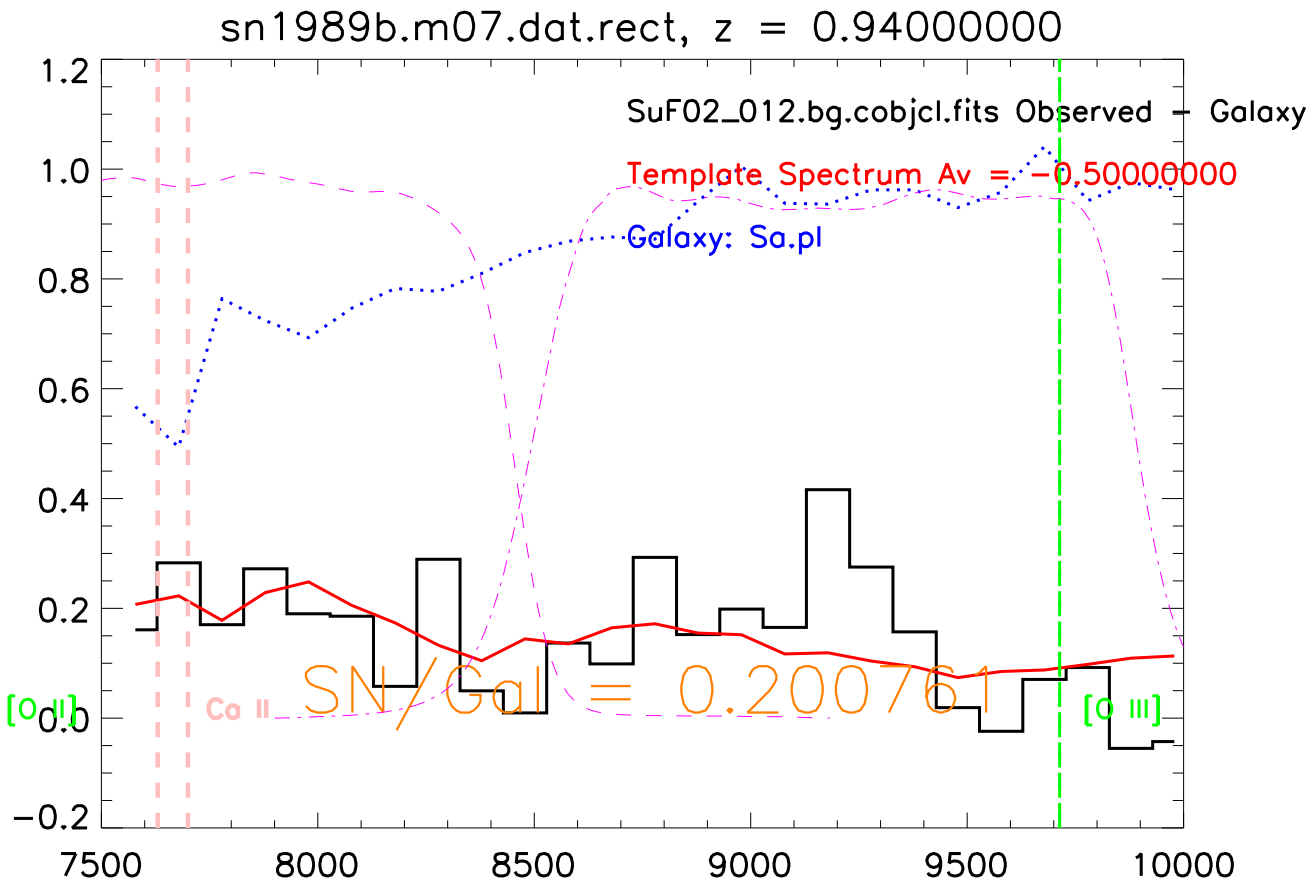
9000
9500
10000


sn1994d.m08.dat.rect, z = 0.94999999
SuF02_012.bg.cobjcl.fits Observed − Galaxy
Template Spectrum Av = −0.50000000
Galaxy: Sa.pl
SN/Gal = 0.215307
[O II]
Ca II
[O III]
1.2
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
7500
8000
8500
9000
9500
10000


sn1989b.m05.dat.rect, z = 0.94000000
SuF02_012.bg.cobjcl.fits Observed - Galaxy
Template Spectrum Av = -0.50000000
Galaxy: Sa.pl
SN/Gal = 0.208102
[O II]
Ca II
[O III]
1.2
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
7500
8000
8500
9000
9500
10000


sn1999ee.m08.dat.rect, z = 0.94999999
SuF02_012.bg.cobjcl.fits Observed + Galaxy
Template Spectrum Av = 0.50000000
Galaxy: Sa.pl
SN/Gal = 0.244634
[O II]
Ca II
[O II]
1.2
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
7500
8000
8500
9000
9500
10000


sn1989b.m07.dat.rect, z = 0.94000000
SuF02_012.bg.cobjcl.fits Observed – Galaxy
Template Spectrum Av = −0.50000000
Galaxy: Sa.pl
SN/Gal = 0.200761
[O II]
Ca II
[O III]
1.2
1.0
0.8
0.6
0.4
0.2
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8000
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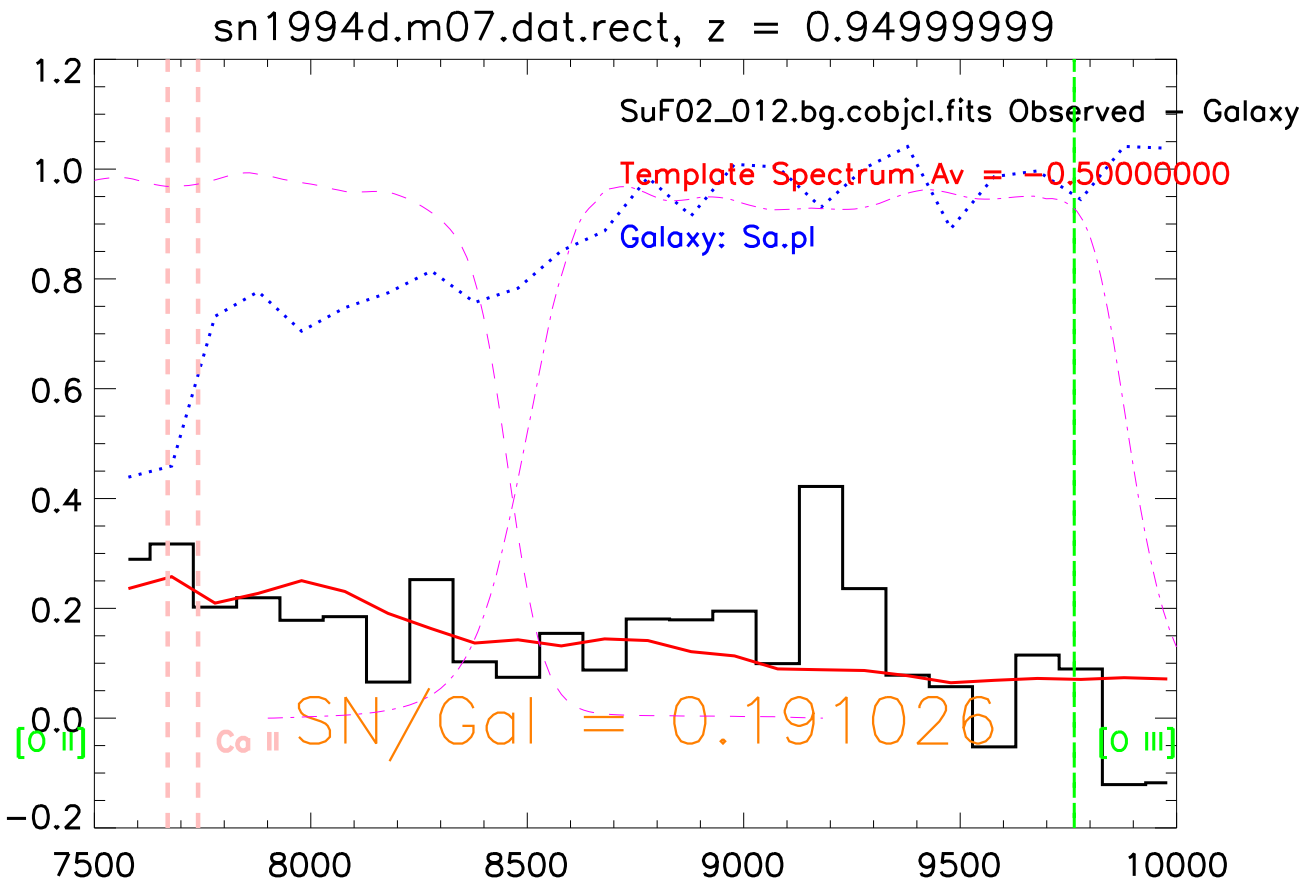
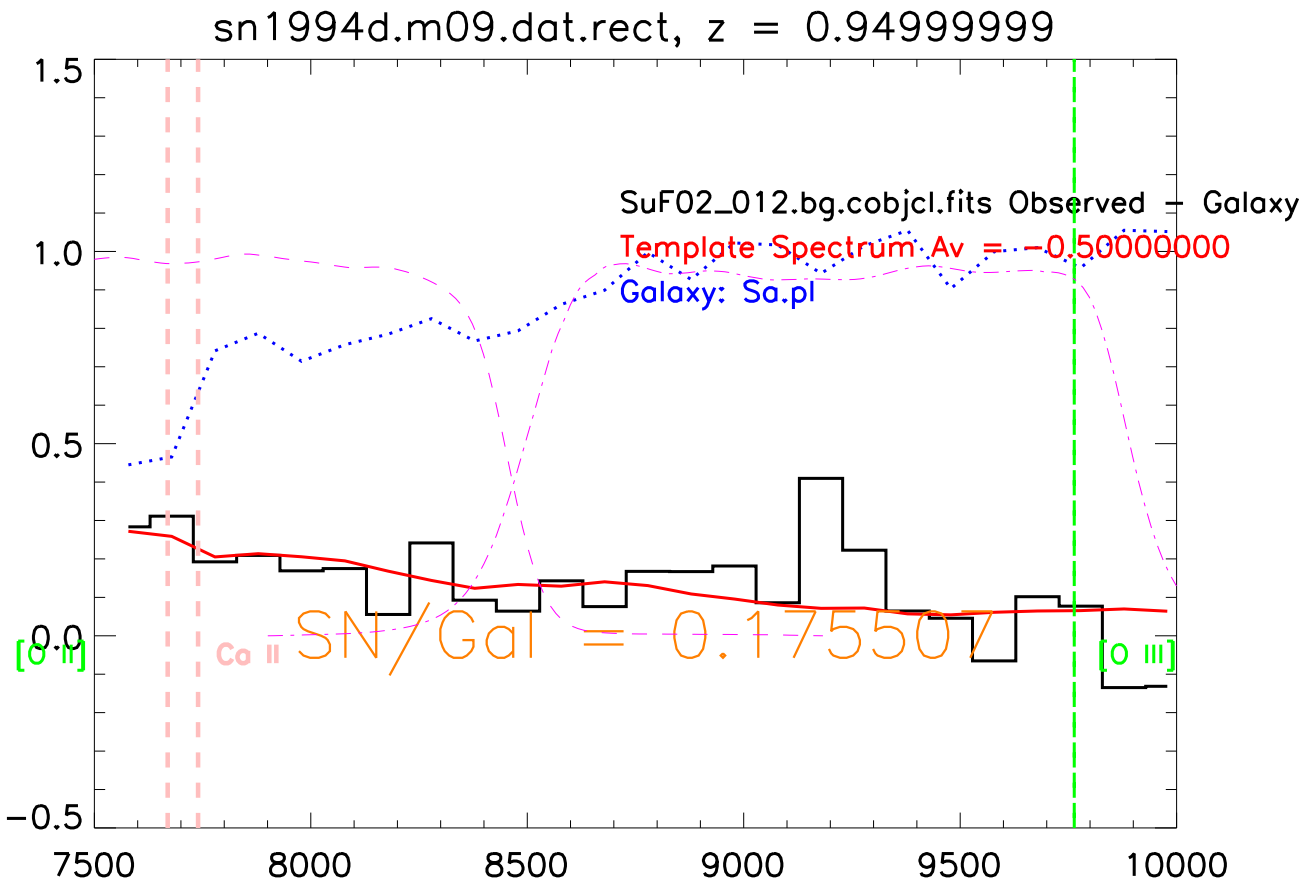
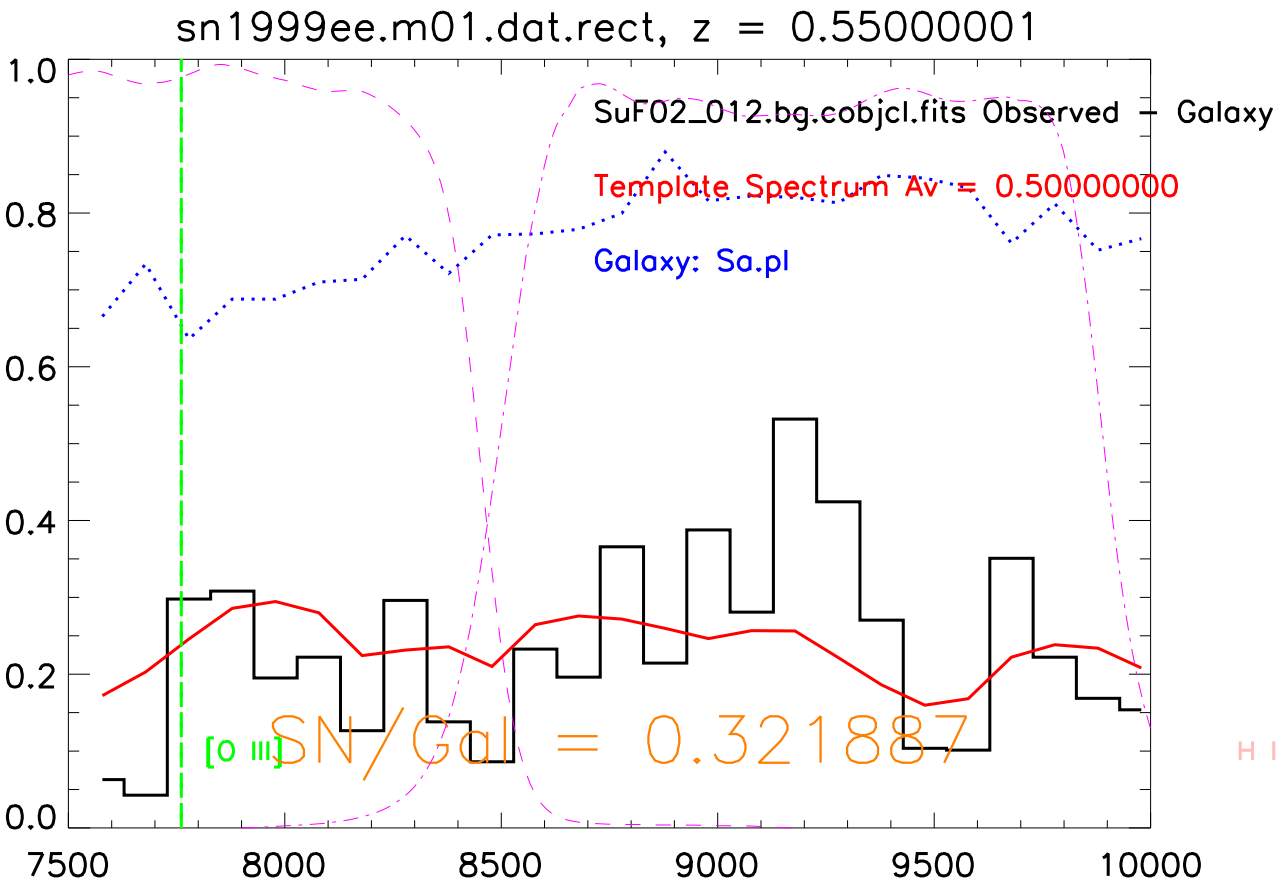
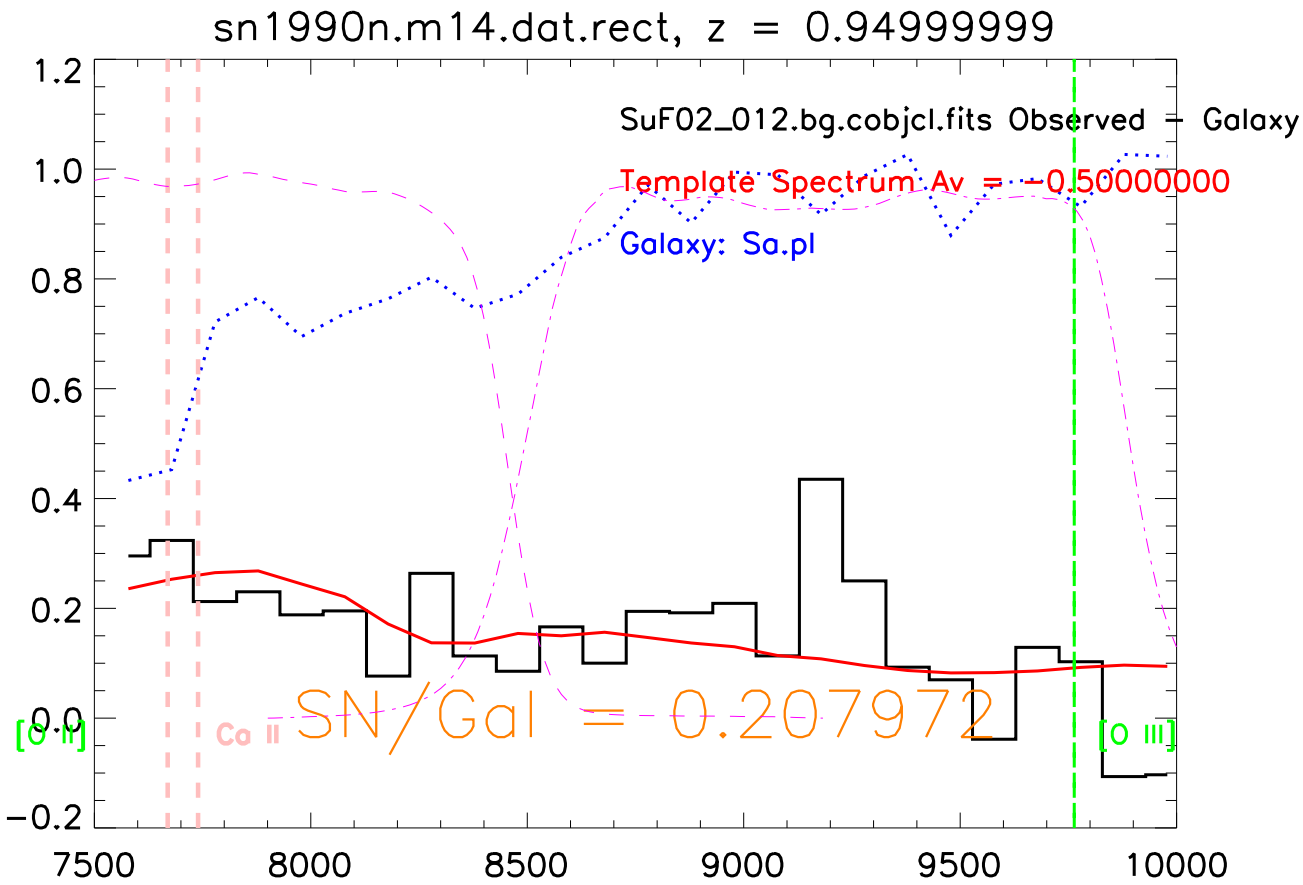
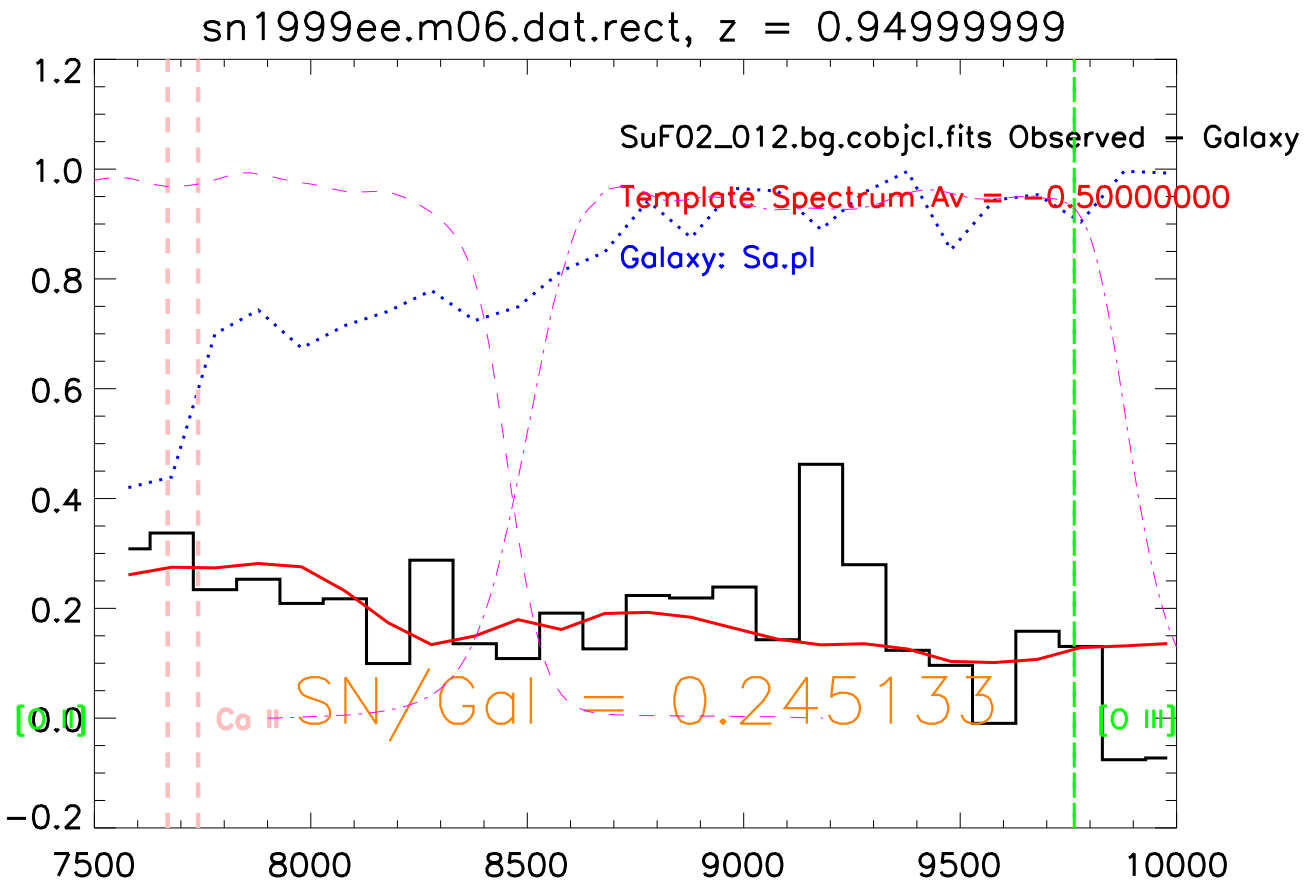
9000
9500
10000

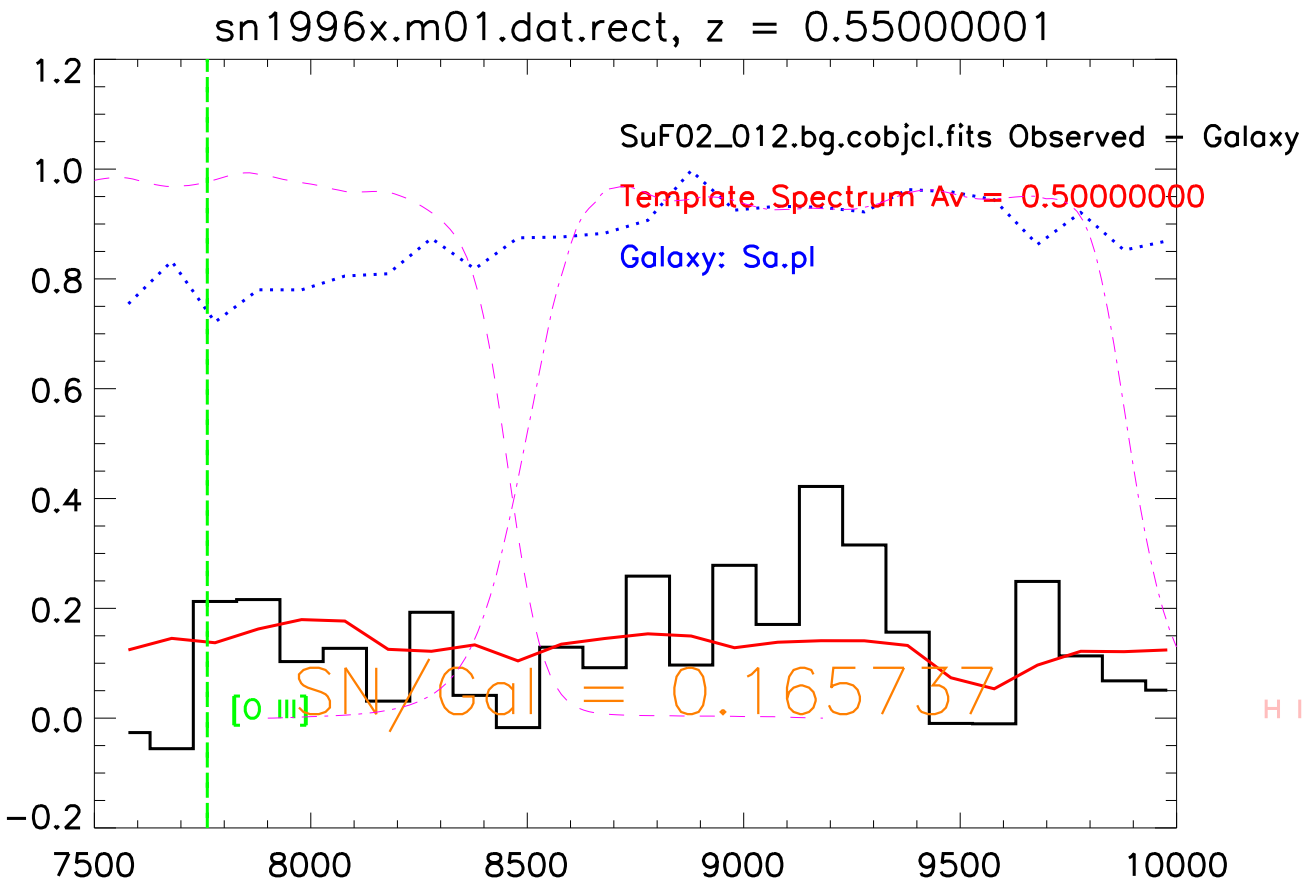

sn1994d.m07.dat.rect, z = 0.94999999
SuF02_012.bg.cobjcl.fits Observed – Galaxy
Template Spectrum Av = 0.50000000
Galaxy: Sa.pl
SN/Gal = 0.191026
[O II]
Ca II
[O III]
1.2
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
7500
8000
8500
9000
9500
10000

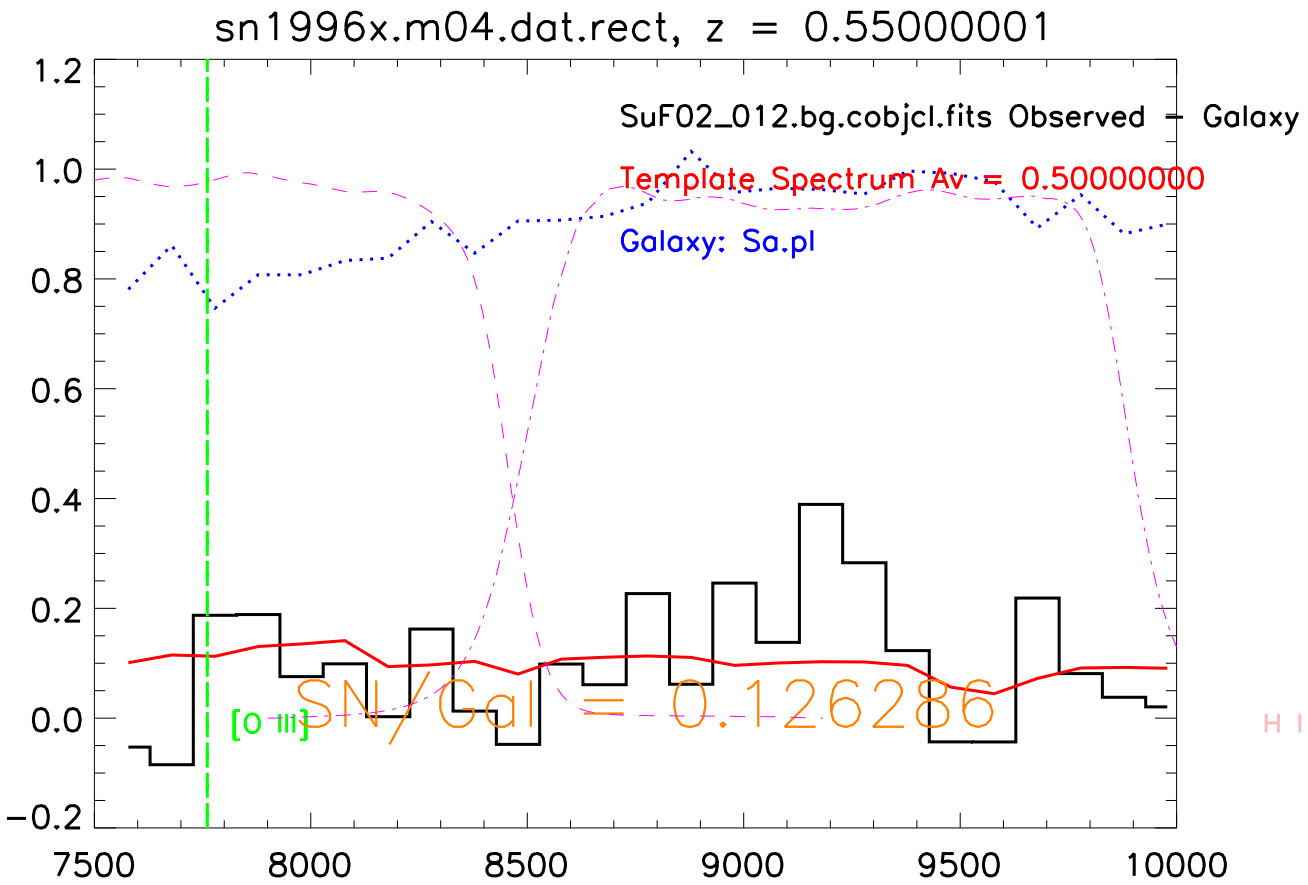

sn1994d.m09.dat.rect, z = 0.94999999
SuF02_012.bg.cobjcl.fits Observed – Galaxy
Template Spectrum Av = -0.50000000
Galaxy: Sa.pl
SN/Gal = 0.17550
[O II]
Ca II
[O III]
1.5
1.0
0.5
0.0
-0.5
7500
8000
8500
9000
9500
10000


sn1999ee.m01.dat.rect, z = 0.55000001
SuF02_012.bg.cobjcl.fits Observed – Galaxy
Template Spectrum Av = 0.50000000
Galaxy: Sa.pl
SN/Gal = 0.321887
[O III]
H I
1.0
0.8
0.6
0.4
0.2
0.0
7500
8000
8500
9000
9500
10000


sn1990n.m14.dat.rect, z = 0.94999999
SuF02_012.bg.cobjcl.fits Observed + Galaxy
Template Spectrum Av = -0.50000000
Galaxy: Sa.pl
SN/Gal = 0.207972
[O II]
Ca II
[O III]
1.2
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
7500
8000
8500
9000
9500
10000


sn1999ee.m06.dat.rect, z = 0.94999999
SuF02_012.bg.cobjcl.fits Observed - Galaxy
Template Spectrum Av = -0.50000000
Galaxy: Sa.pl
SN/Gal = 0.245133
Ca II
[O II]
[O II]
1.2
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
7500
8000
8500
9000
9500
10000


sn1996x.m01.dat.rect, z = 0.55000001
SuF02_012.bg.cobjcl.fits Observed - Galaxy
Template Spectrum Av = 0.50000000
Galaxy: Sa.pl
SN/Gal = 0.165737
[O III]
H I
1.2
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
7500
8000
8500
9000
9500
10000


sn1996x.m04.dat.rect, z = 0.55000001
SuF02_012.bg.cobjcl.fits Observed - Galaxy
Template Spectrum Av = 0.50000000
Galaxy: Sa.pl
SN/Gal = 0.126286
[O III]
H I
1.2
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
7500
8000
8500
9000
9500
10000