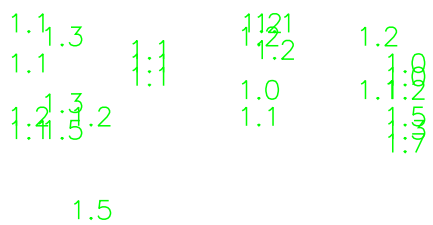
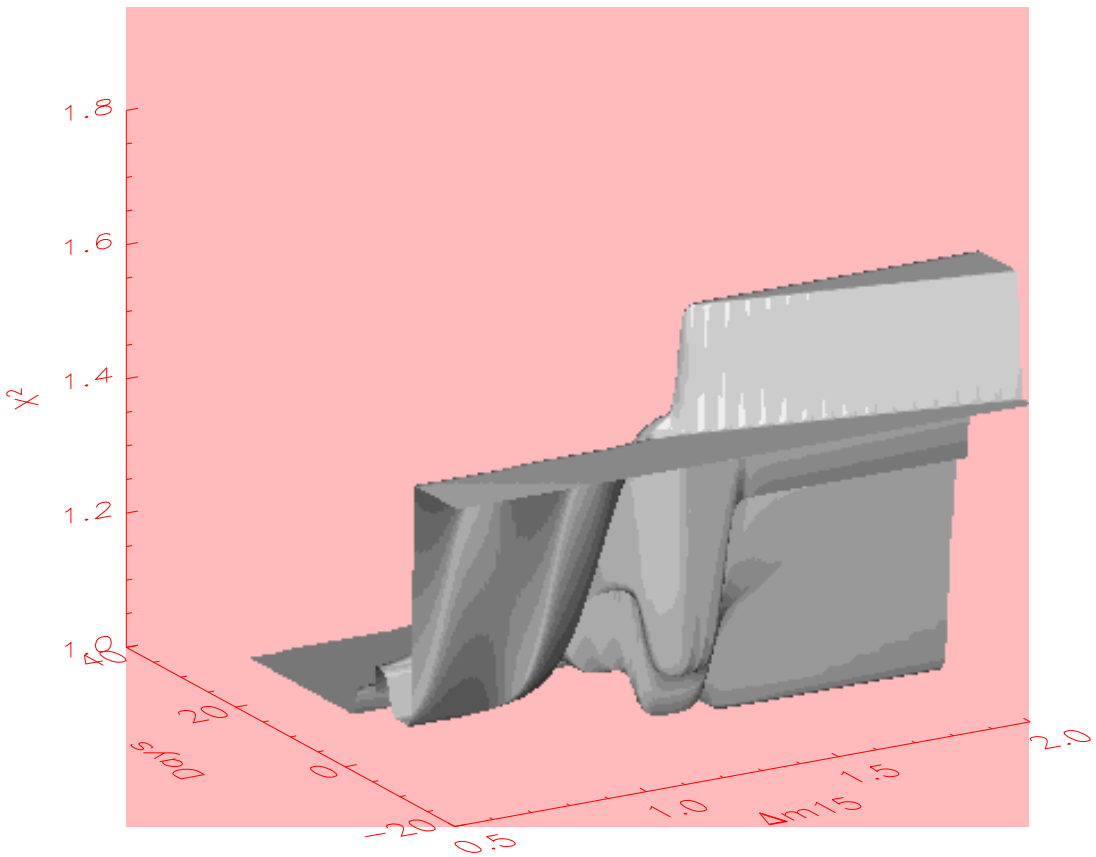
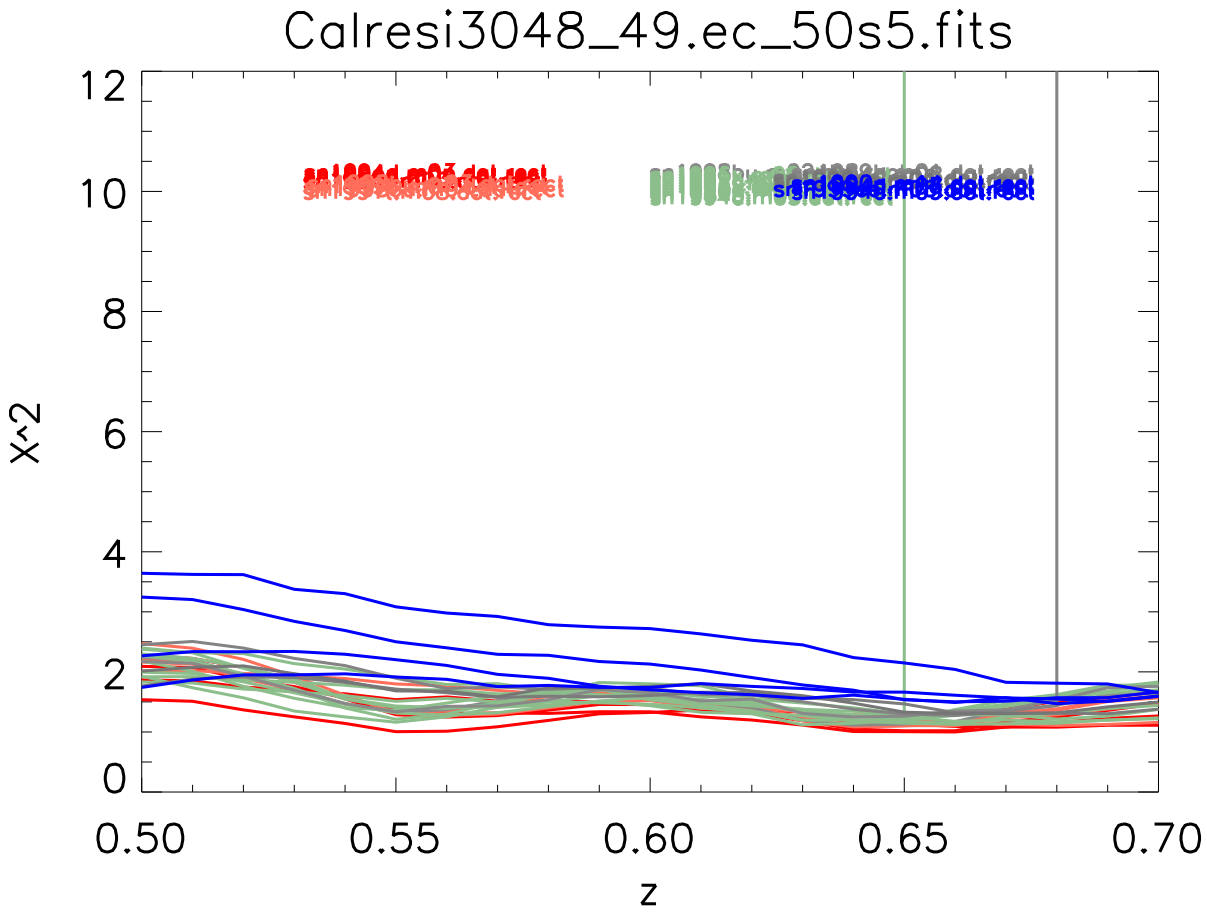
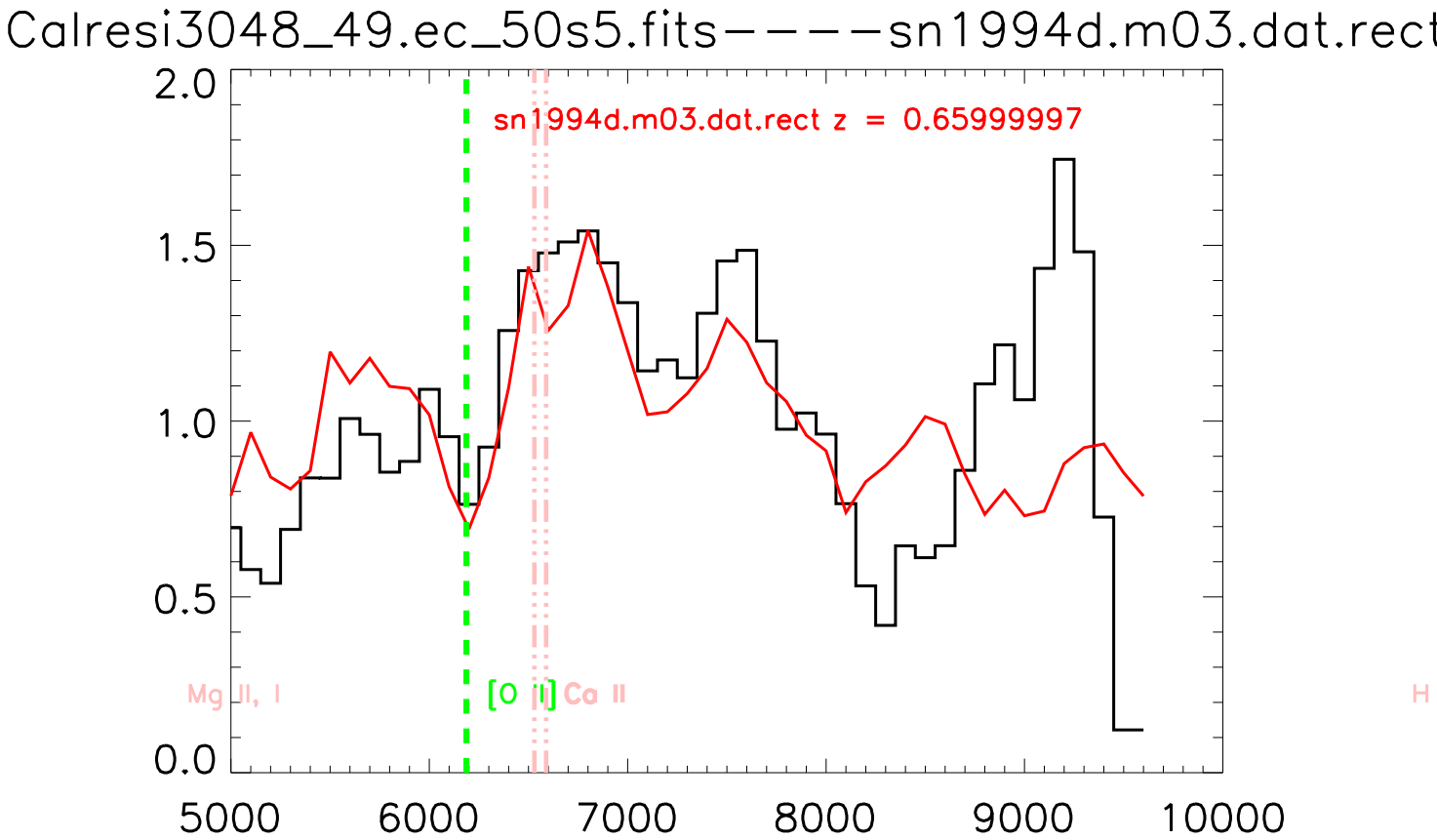
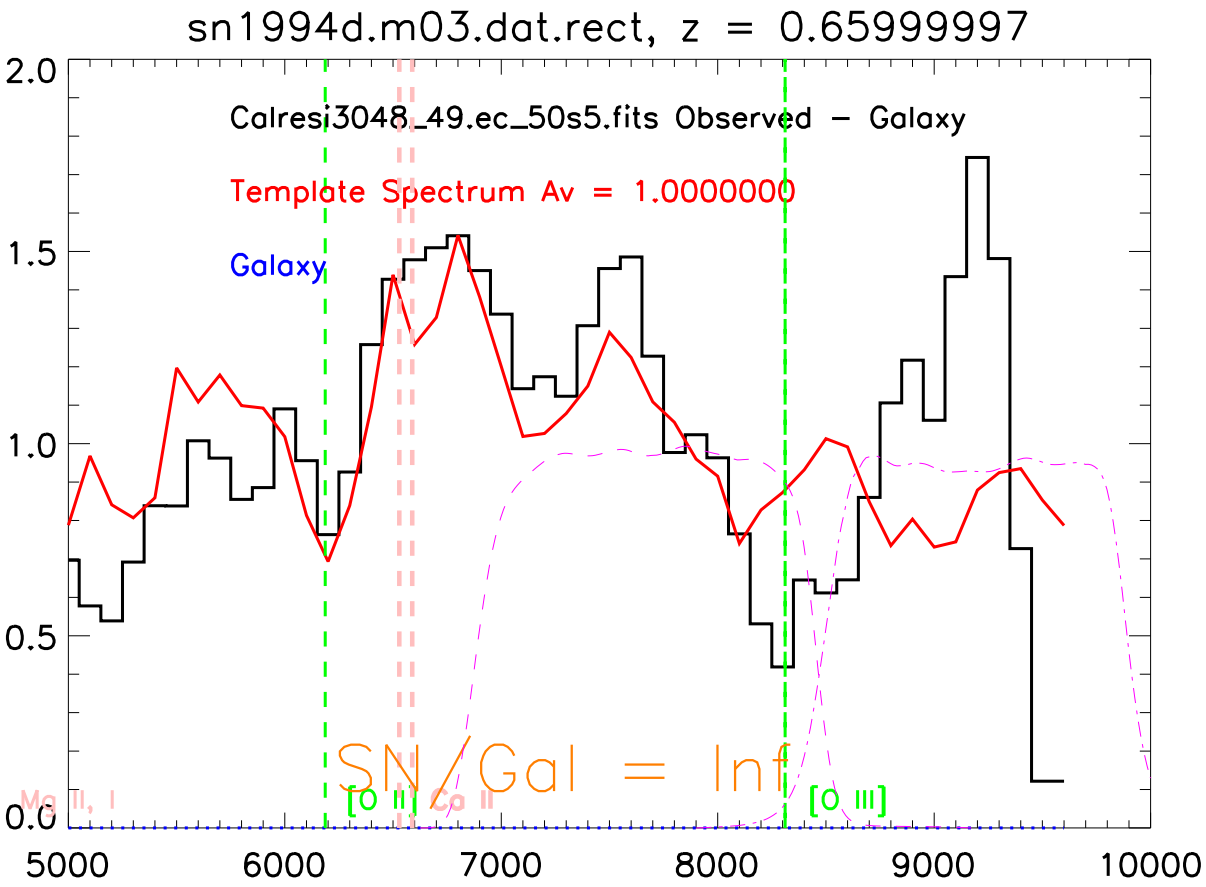


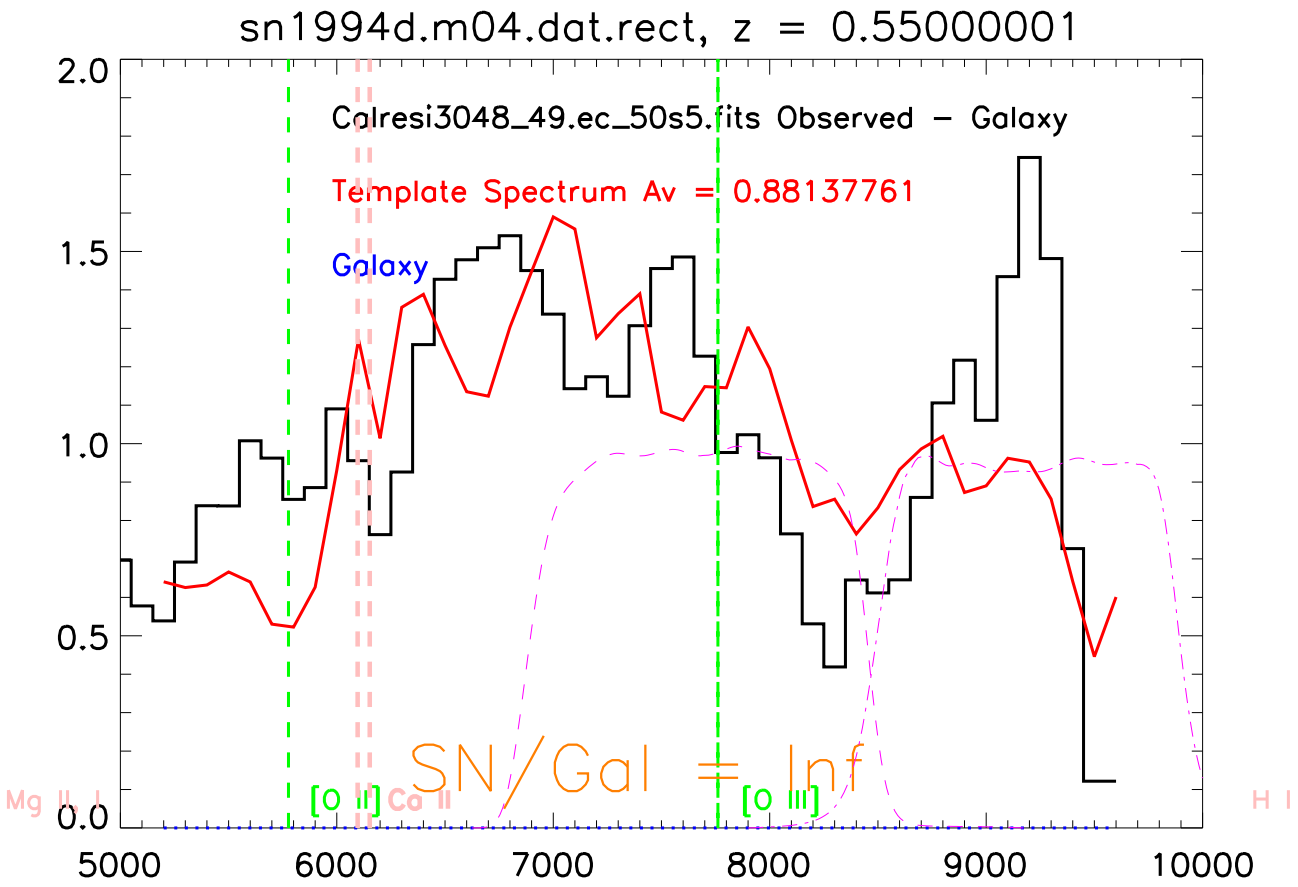


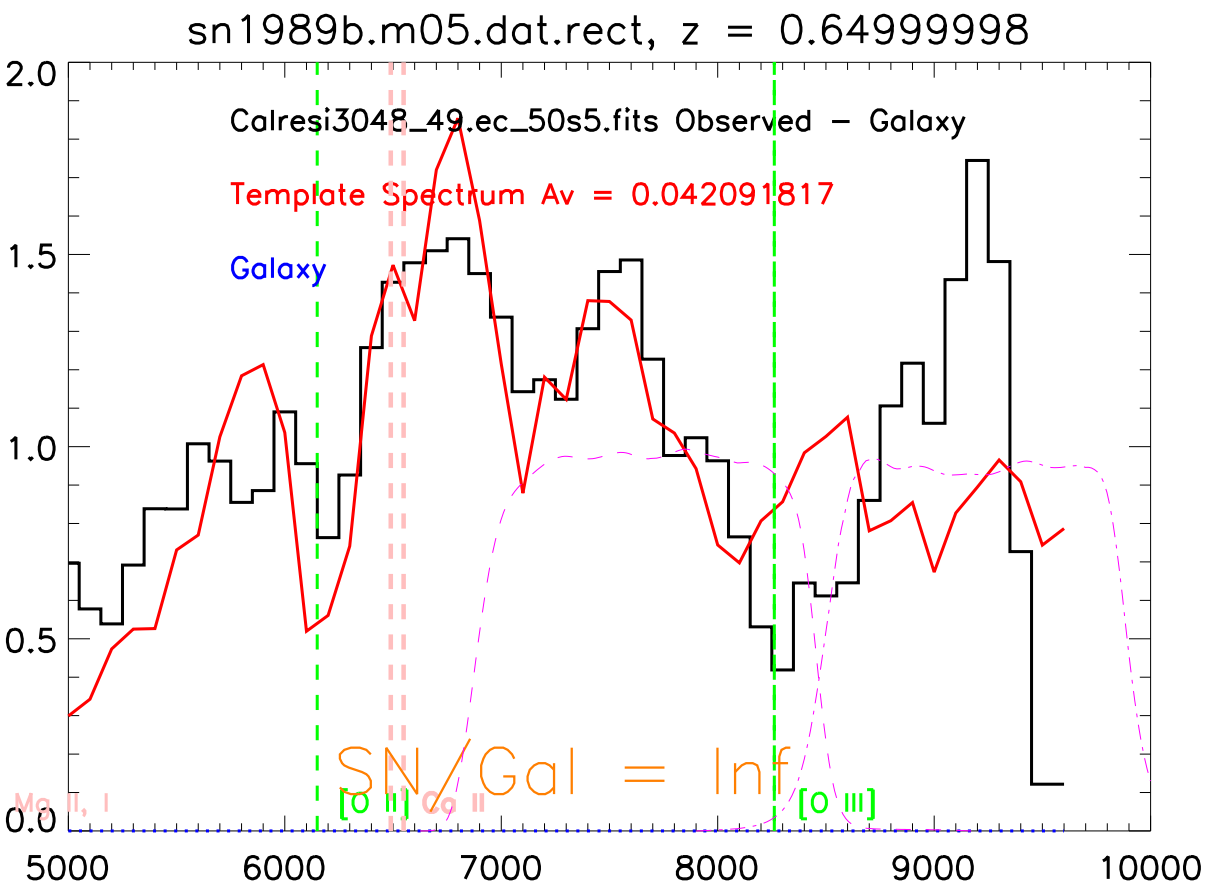
1.8
1.6
1.4
1.2
1.0
χ^2
40
20
0
−20
Days
0.5
1.0
1.5
2.0
Δm15


Calresi3048_49.ec_50s5.fits
12
10
8
6
4
2
0
X^2
0.50
0.55
0.60
0.65
0.70
z


Calresi3048_49.ec_50s5.fits----sn1994d.m03.dat.rect
sn1994d.m03.dat.rect z = 0.65999997
2.0
1.5
1.0
0.5
0.0
Mg II, I
[O II]
Ca II
H
5000
6000
7000
8000
9000
10000


sn1994d.m03.dat.rect, z = 0.65999997
Calresi3048_49.ec_50s5.fits Observed − Galaxy
Template Spectrum Av = 1.0000000
Galaxy
SN/Gal = Inf
Mg II, I
[O II]
Ca II
[O III]
2.0
1.5
1.0
0.5
0.0
5000
6000
7000
8000
9000
10000


sn1994d.m04.dat.rect, z = 0.55000001
Calresi3048_49.ec_50s5.fits Observed − Galaxy
Template Spectrum Av = 0.88137761
Galaxy
SN/Gal = Inf
[O II]
Ca II
[O III]
Mg II
H I
2.0
1.5
1.0
0.5
0.0
5000
6000
7000
8000
9000
10000


sn1989b.m05.dat.rect, z = 0.64999998
Calresi3048_49.ec_50s5.fits Observed − Galaxy
Template Spectrum Av = 0.042091817
Galaxy
SN/Gal = Inf
[O II] Ca II
[O III]
2.0
1.5
1.0
0.5
0.0
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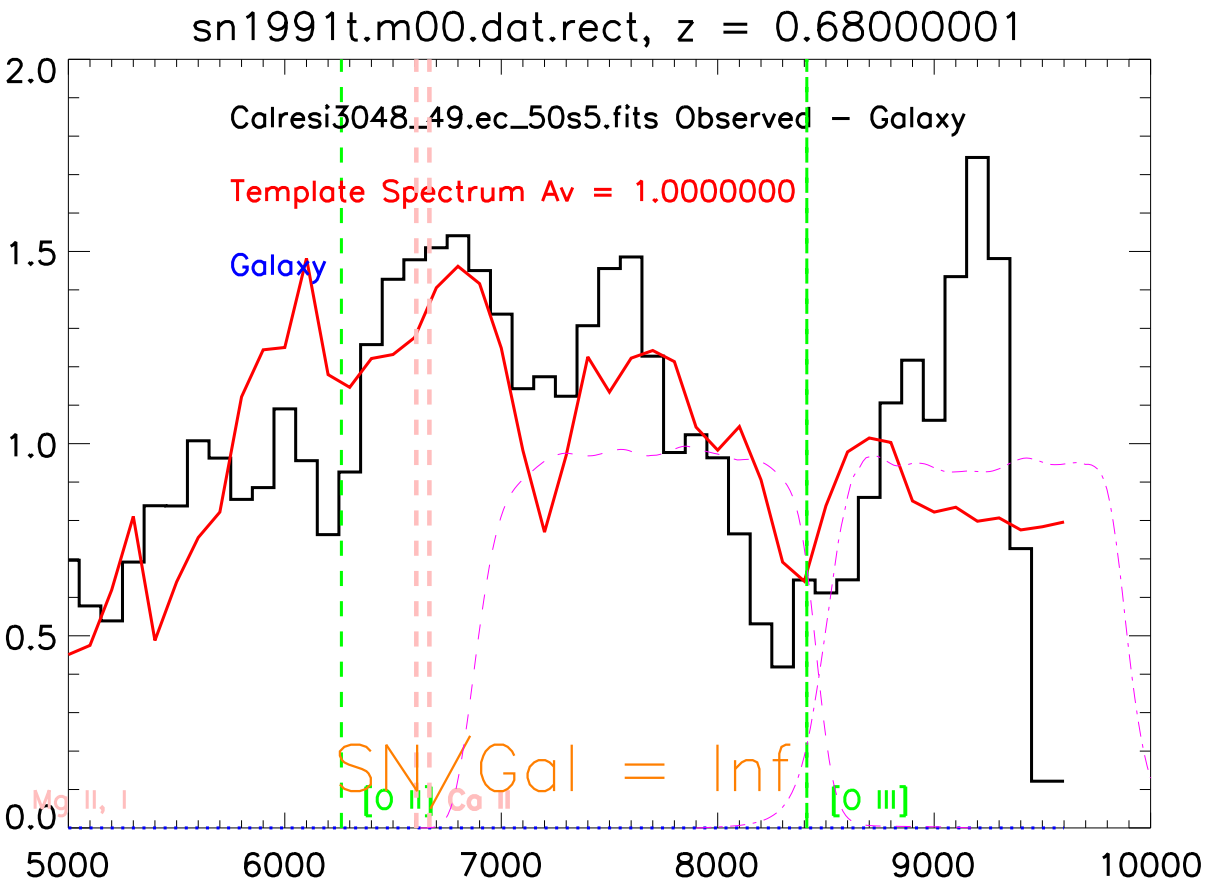
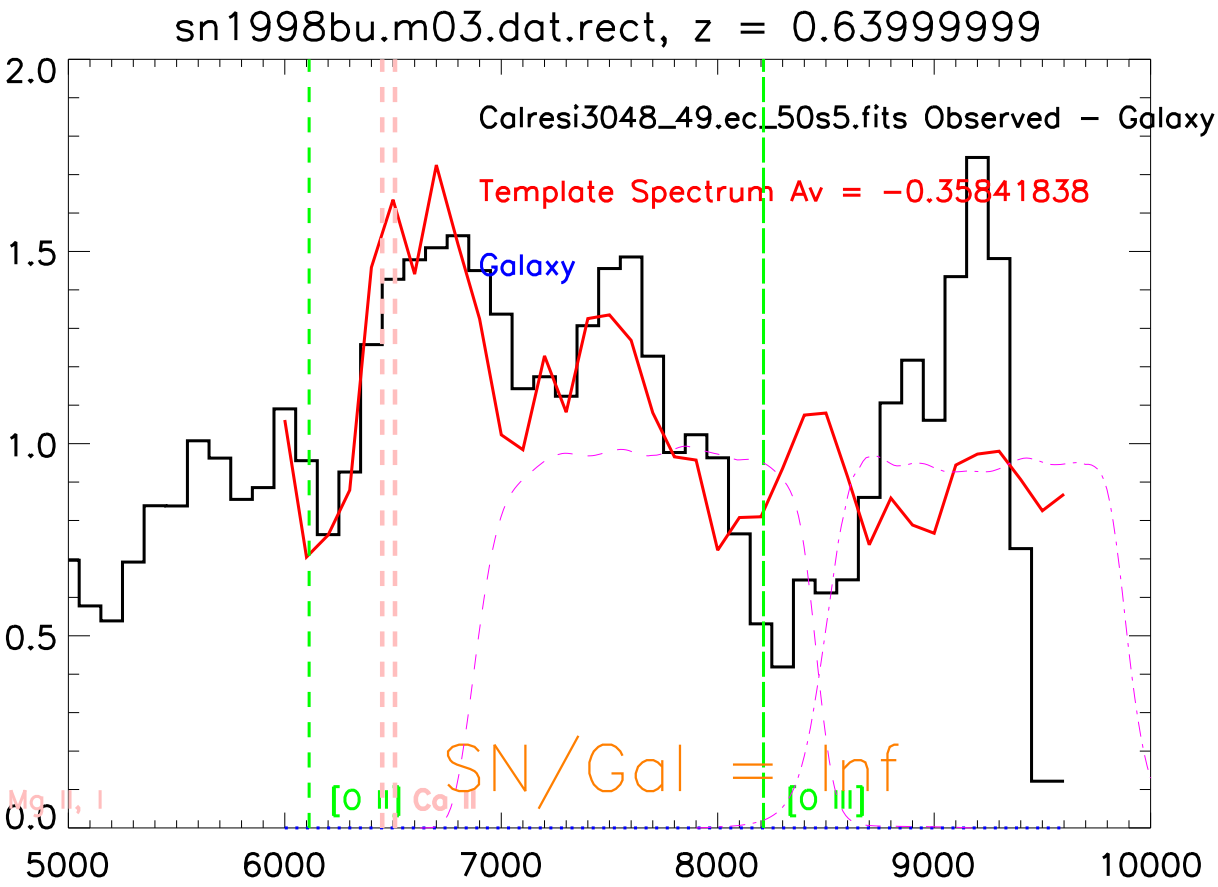
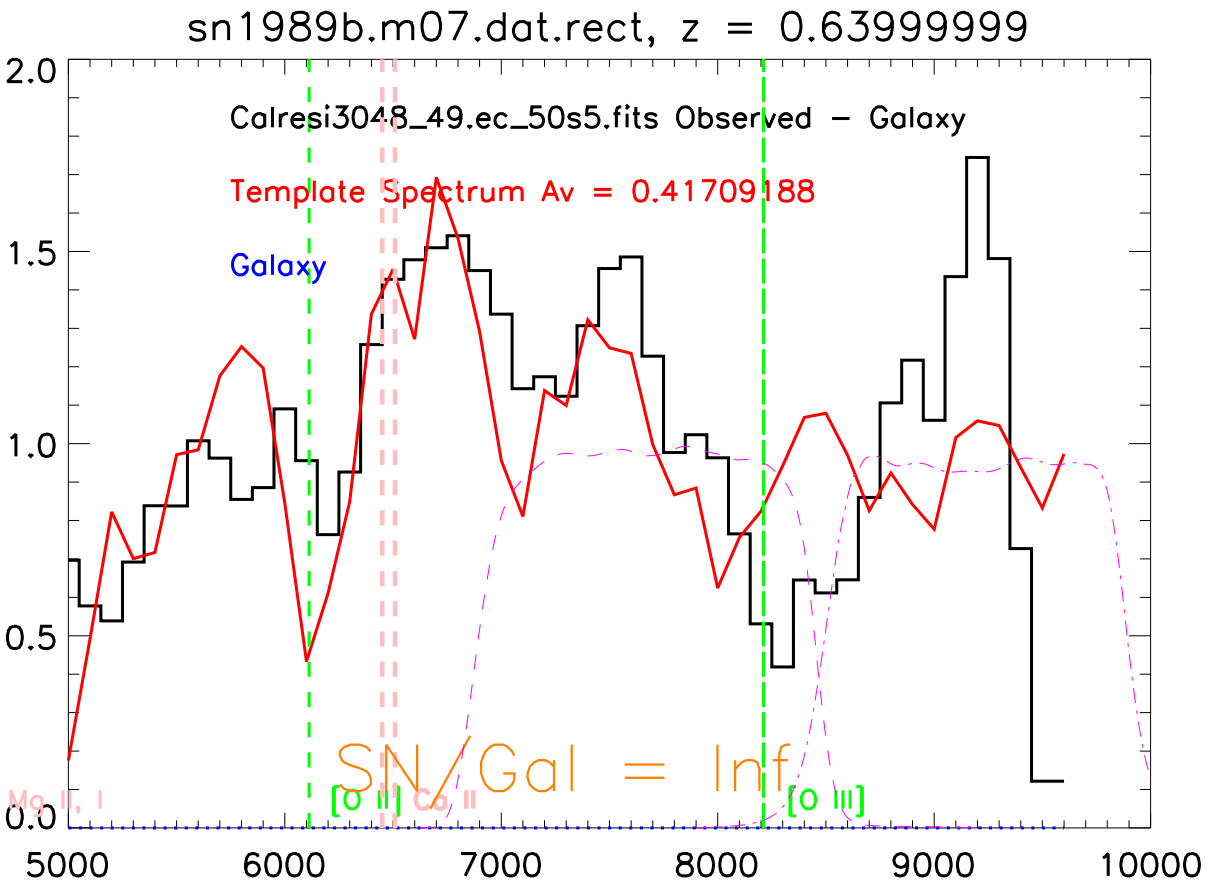
6000
7000
8000
9000
10000


sn1991t.m00.dat.rect, z = 0.68000001
Calresi3048..49.ec_50s5.fits Observed – Galaxy
Template Spectrum Av = 1.0000000
Galaxy
SN/Gal = Inf
Mg II, I
[O II]
Ca II
[O III]
2.0
1.5
1.0
0.5
0.0
5000
6000
7000
8000
9000
10000


sn1998bu.m03.dat.rect, z = 0.63999999
Calresi3048_49.ec_50s5.fits Observed − Galaxy
Template Spectrum Av = −0.35841838
Galaxy
SN/Gal = Inf
[O II]
Ca, II
[O III]
2.0
1.5
1.0
0.5
0.0
5000
6000
7000
8000
9000
10000


sn1989b.m07.dat.rect, z = 0.63999999
Calresi3048_49.ec_50s5.fits Observed − Galaxy
Template Spectrum Av = 0.41709188
Galaxy
SN/Gal = Inf
[O II]
[O III]
2.0
1.5
1.0
0.5
0.0
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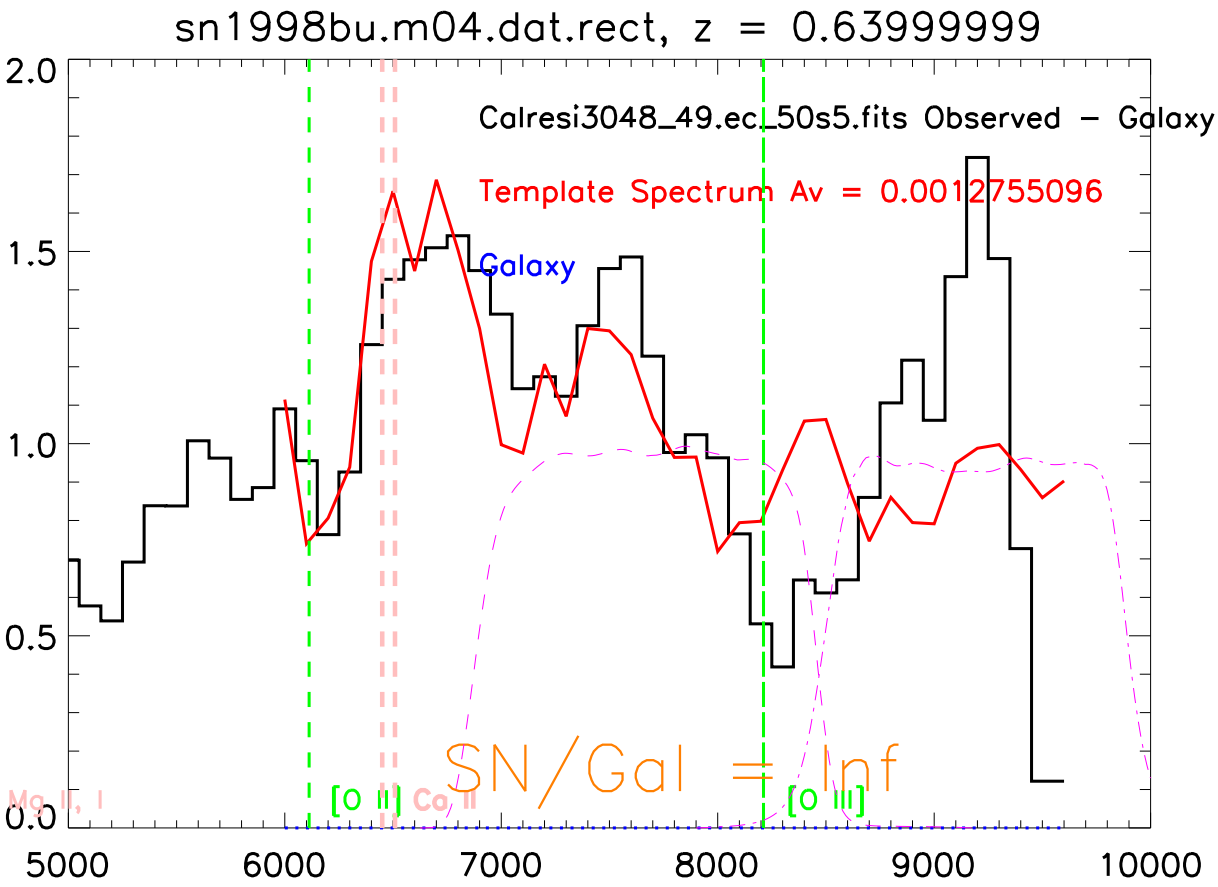
6000
7000
8000
9000
10000


sn1998bu.m04.dat.rect, z = 0.63999999
Calresi3048_49.ec_50s5.fits Observed − Galaxy
Template Spectrum Av = 0.0012755096
Galaxy
SN/Gal = Inf
[O II]
Ca, II
[O III]
2.0
1.5
1.0
0.5
0.0
5000
6000
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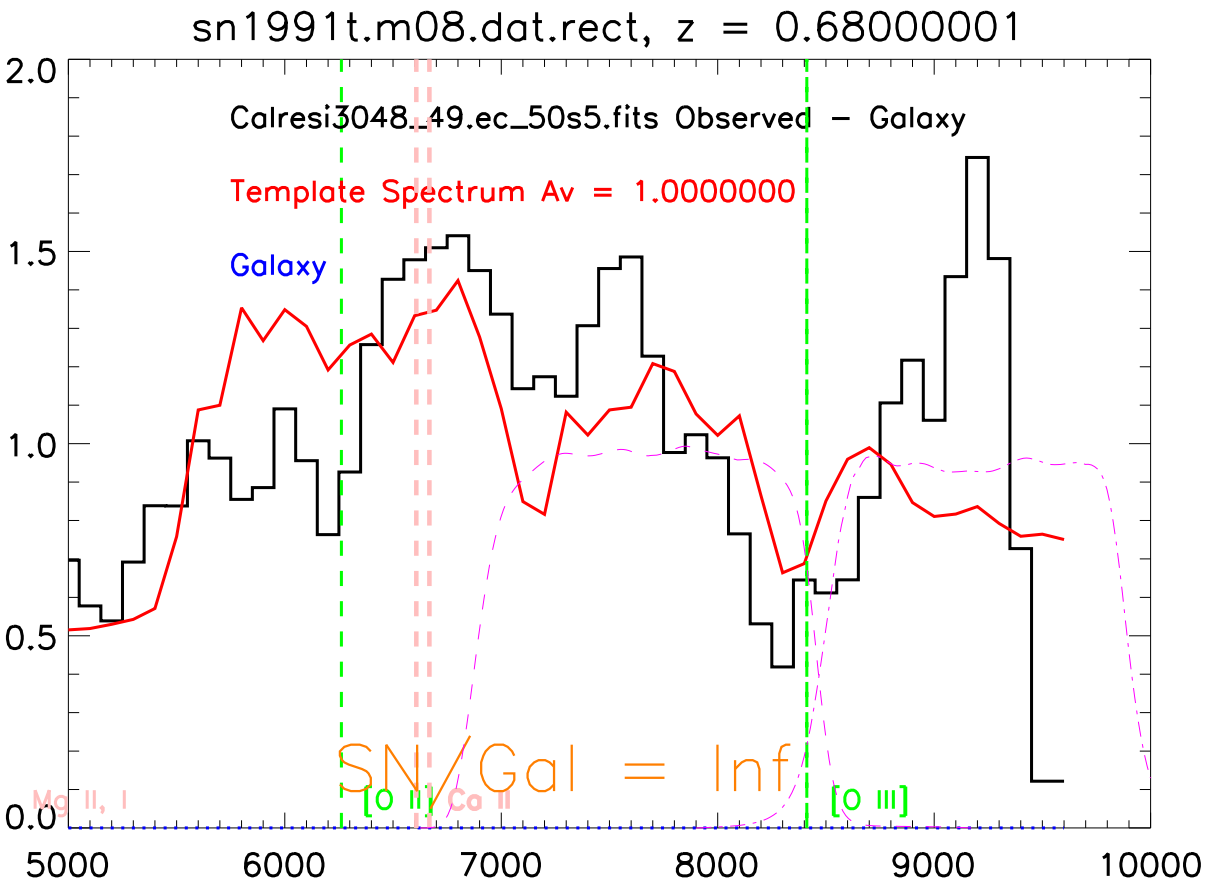
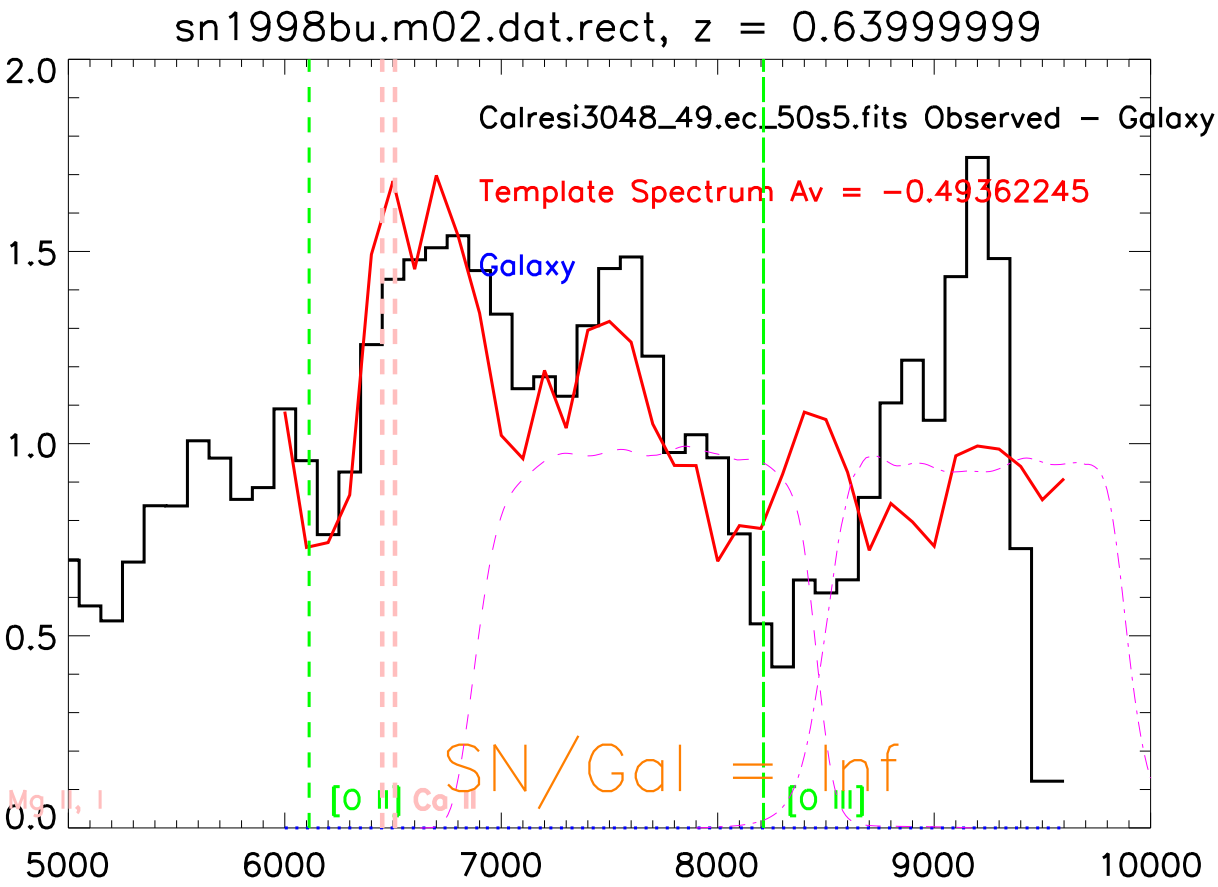
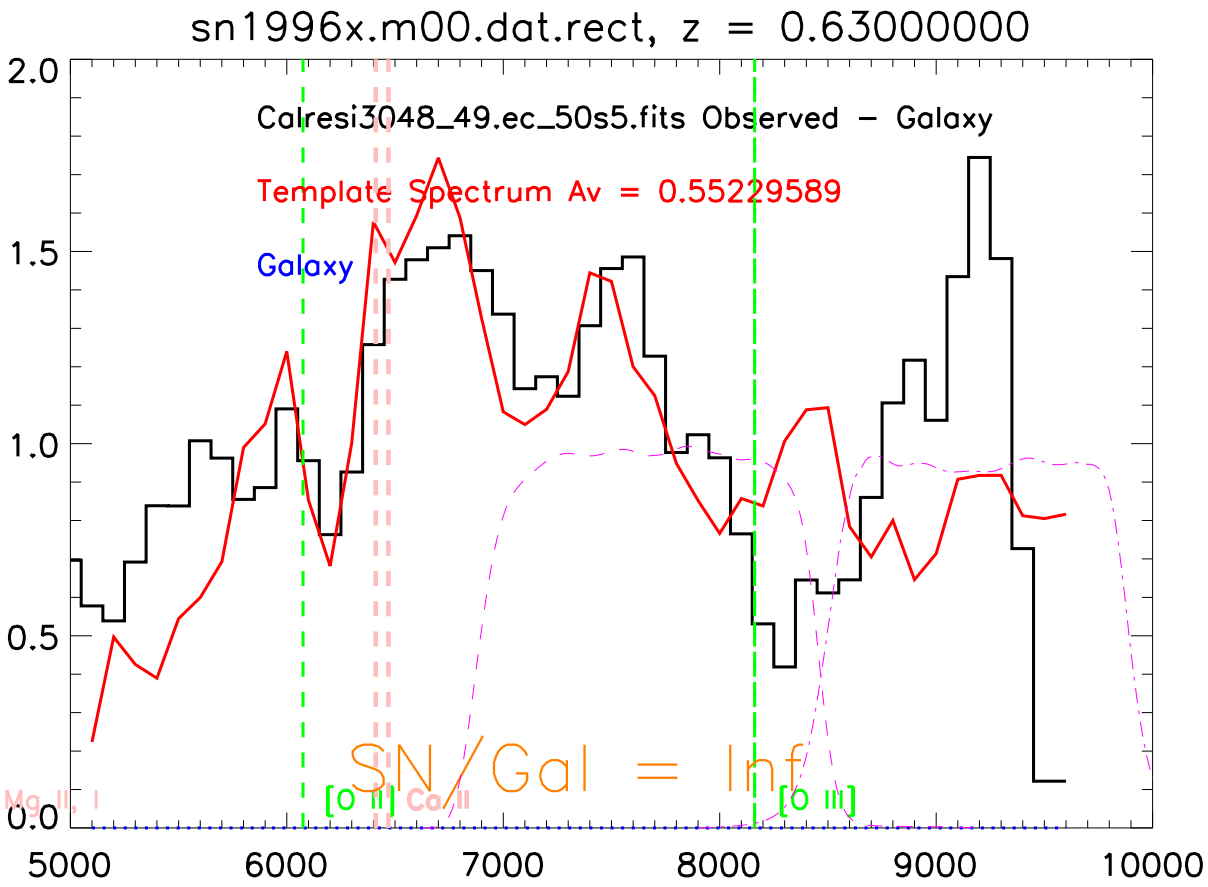
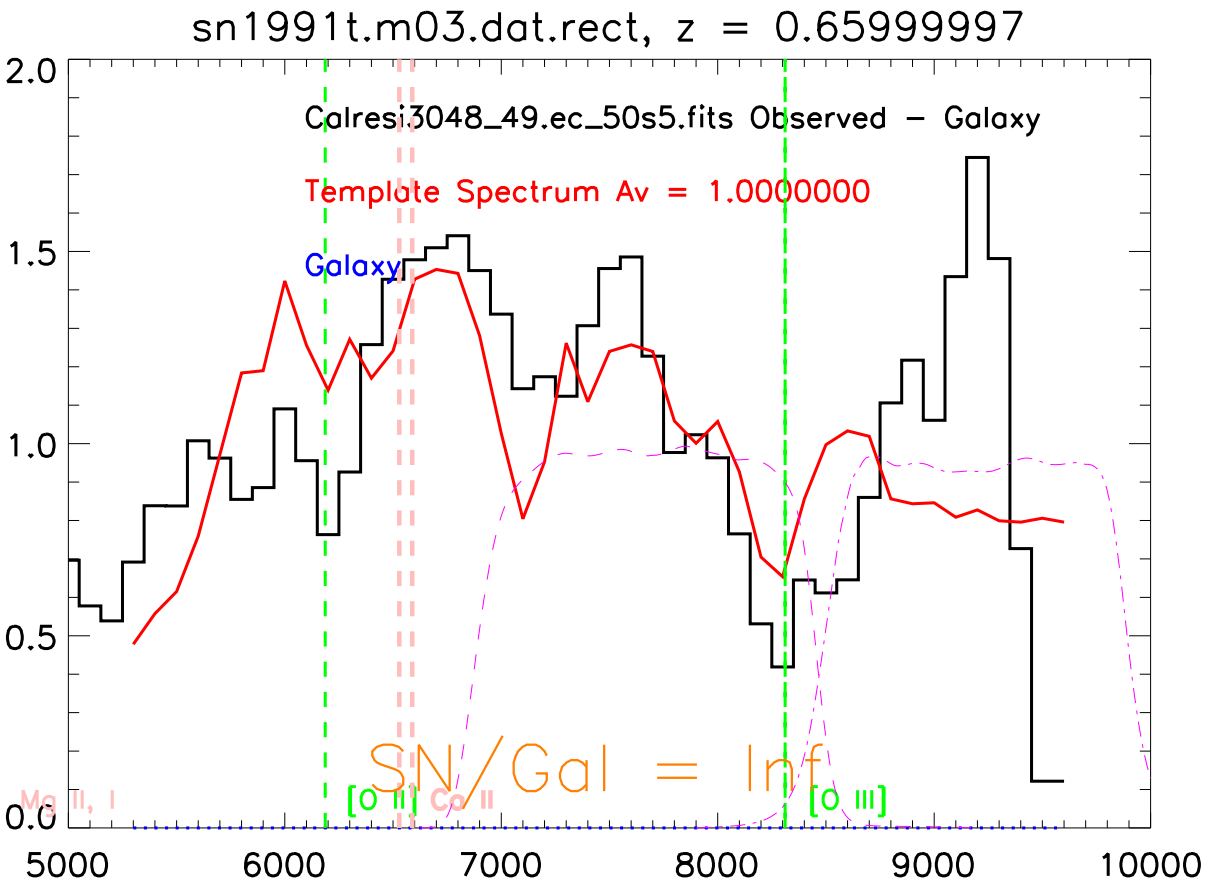
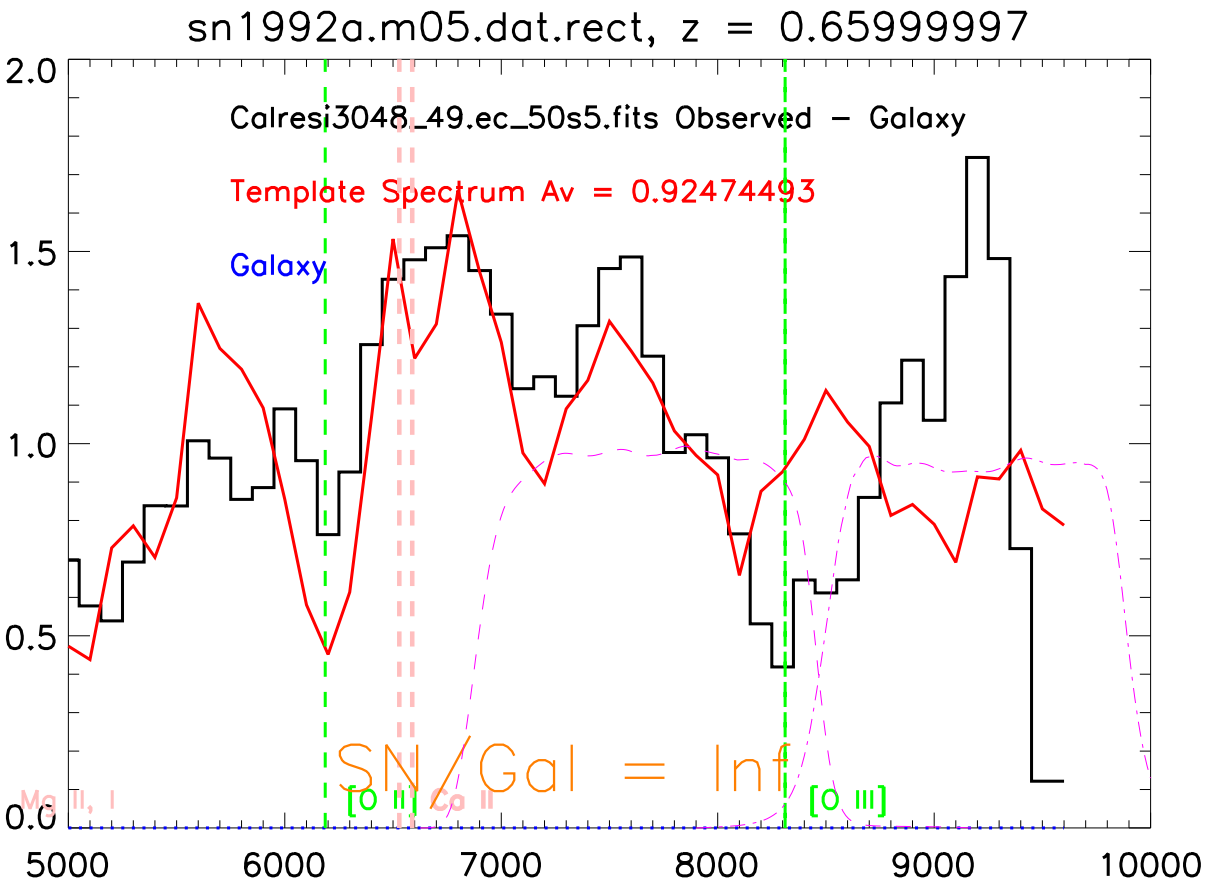
8000
9000
10000

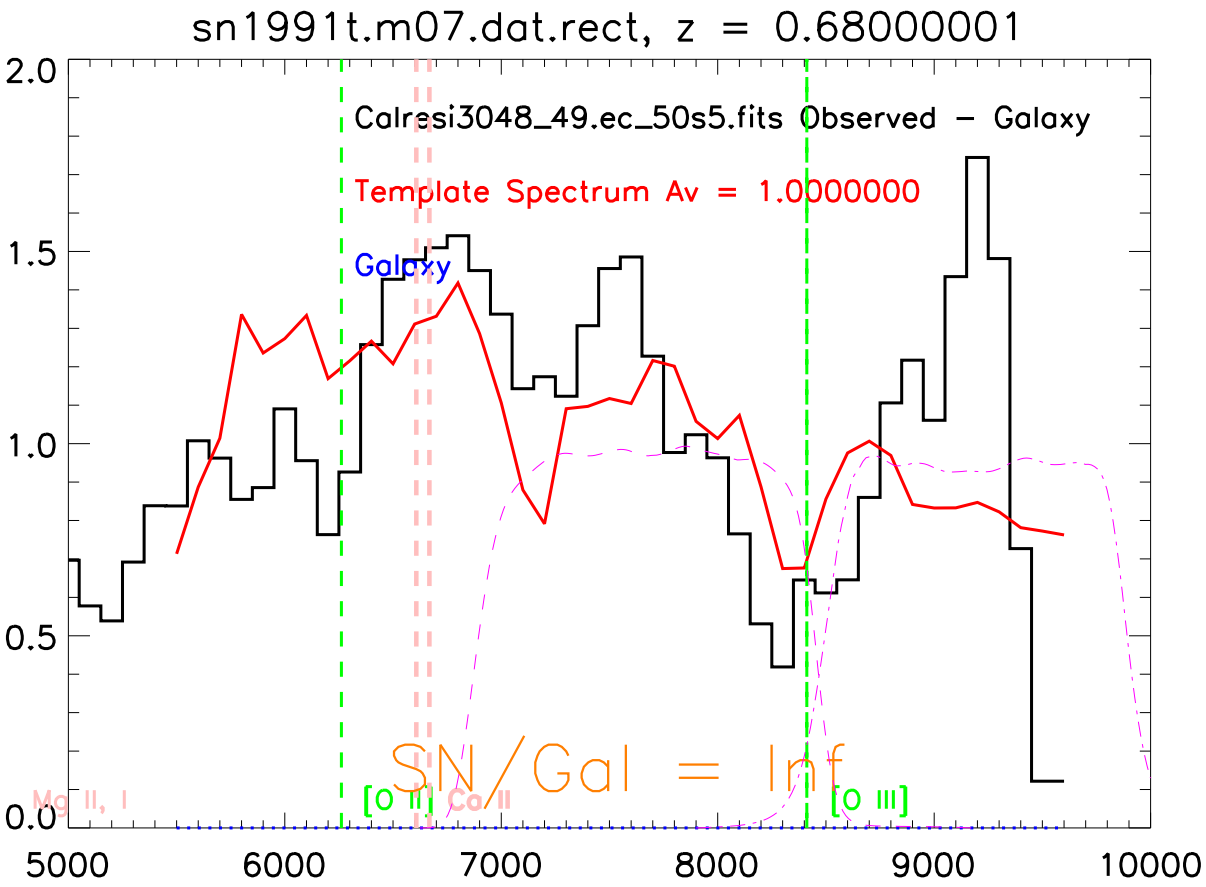

sn1991t.m08.dat.rect, z = 0.68000001
Calresi3048..49.ec_50s5.fits Observed – Galaxy
Template Spectrum Av = 1.0000000
Galaxy
SN/Gal = Inf
Mg II, I
[O II]
Ca II
[O III]
2.0
1.5
1.0
0.5
0.0
5000
6000
7000
8000
9000
10000


sn1998bu.m02.dat.rect, z = 0.63999999
Calresi3048_49.ec_50s5.fits Observed − Galaxy
Template Spectrum Av = −0.49362245
Galaxy
SN/Gal = Inf
[O II]
Ca, II
[O III]
2.0
1.5
1.0
0.5
0.0
5000
6000
7000
8000
9000
10000


sn1996x.m00.dat.rect, z = 0.63000000
Calresi3048_49.ec_50s5.fits Observed − Galaxy
Template Spectrum Av = 0.55229589
Galaxy
SN/Gal = Inf
[O II]
Ca II
[O III]
Mg II, I
H I
2.0
1.5
1.0
0.5
0.0
5000
6000
7000
8000
9000
10000


sn1991t.m03.dat.rect, z = 0.65999997
Calresi3048_49.ec_50s5.fits Observed − Galaxy
Template Spectrum Av = 1.0000000
Galaxy
SN/Gal = Inf
Mg II, I
[O II] Co II
[O III]
2.0
1.5
1.0
0.5
0.0
5000
6000
7000
8000
9000
10000


sn1992a.m05.dat.rect, z = 0.65999997
Calresi3048_49.ec_50s5.fits Observed – Galaxy
Template Spectrum Av = 0.92474493
Galaxy
SN/Gal = Inf
[O II]
Ca II
[O III]
Mg II, I
2.0
1.5
1.0
0.5
0.0
5000
6000
7000
8000
9000
10000


sn1991t.m07.dat.rect, z = 0.68000001
Calresi3048_49.ec_50s5.fits Observed − Galaxy
Template Spectrum Av = 1.0000000
Galaxy
SN/Gal = Inf
Mg II, I
[O II] Ca II
[O III]
2.0
1.5
1.0
0.5
0.0
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6000
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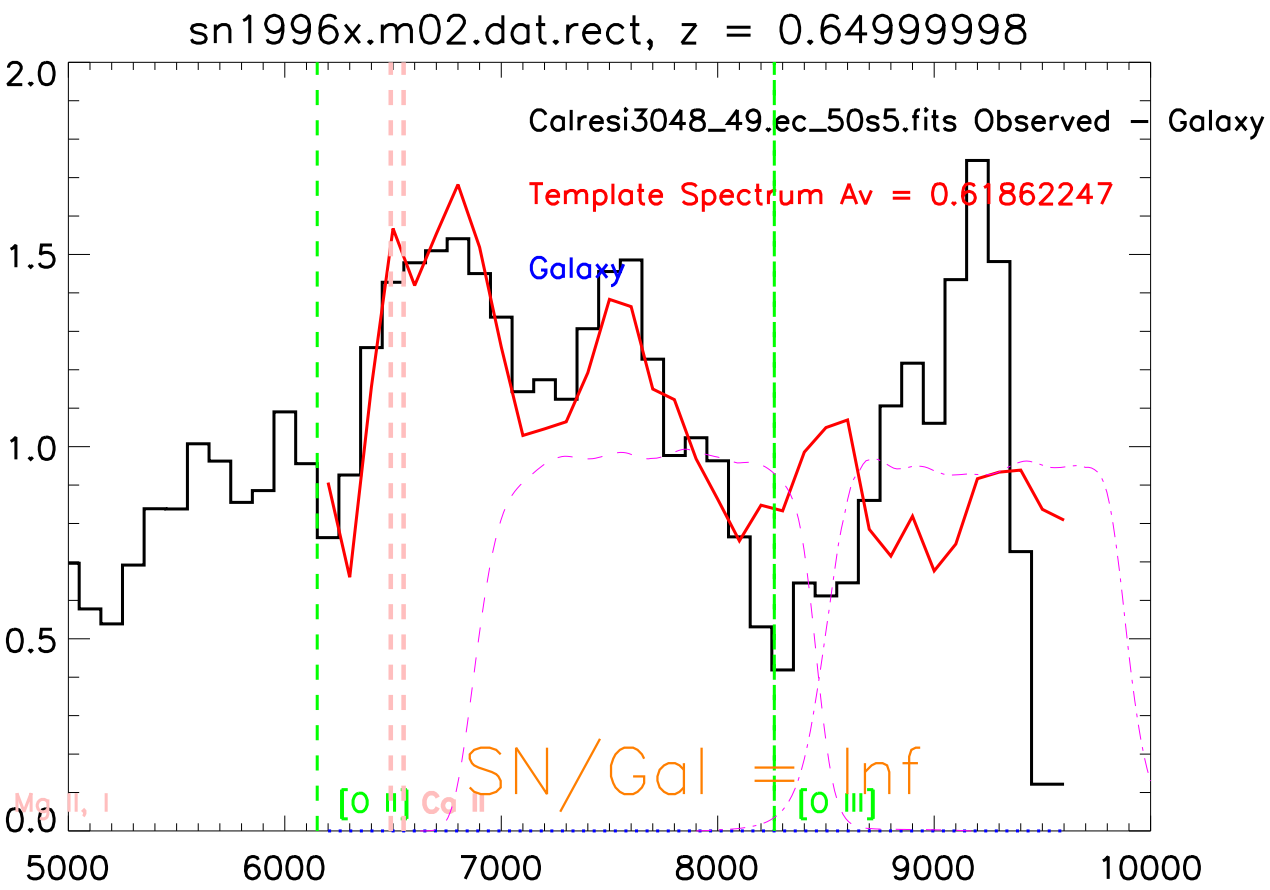
8000
9000
10000


sn1996x.m02.dat.rect, z = 0.64999998
Calresi3048_49.ec_50s5.fits Observed
Galaxy
Template Spectrum Av = 0.61862247
Galaxy
SN/Gal = Inf
[O II]
Ca II
[O III]
Mg II, I
2.0
1.5
1.0
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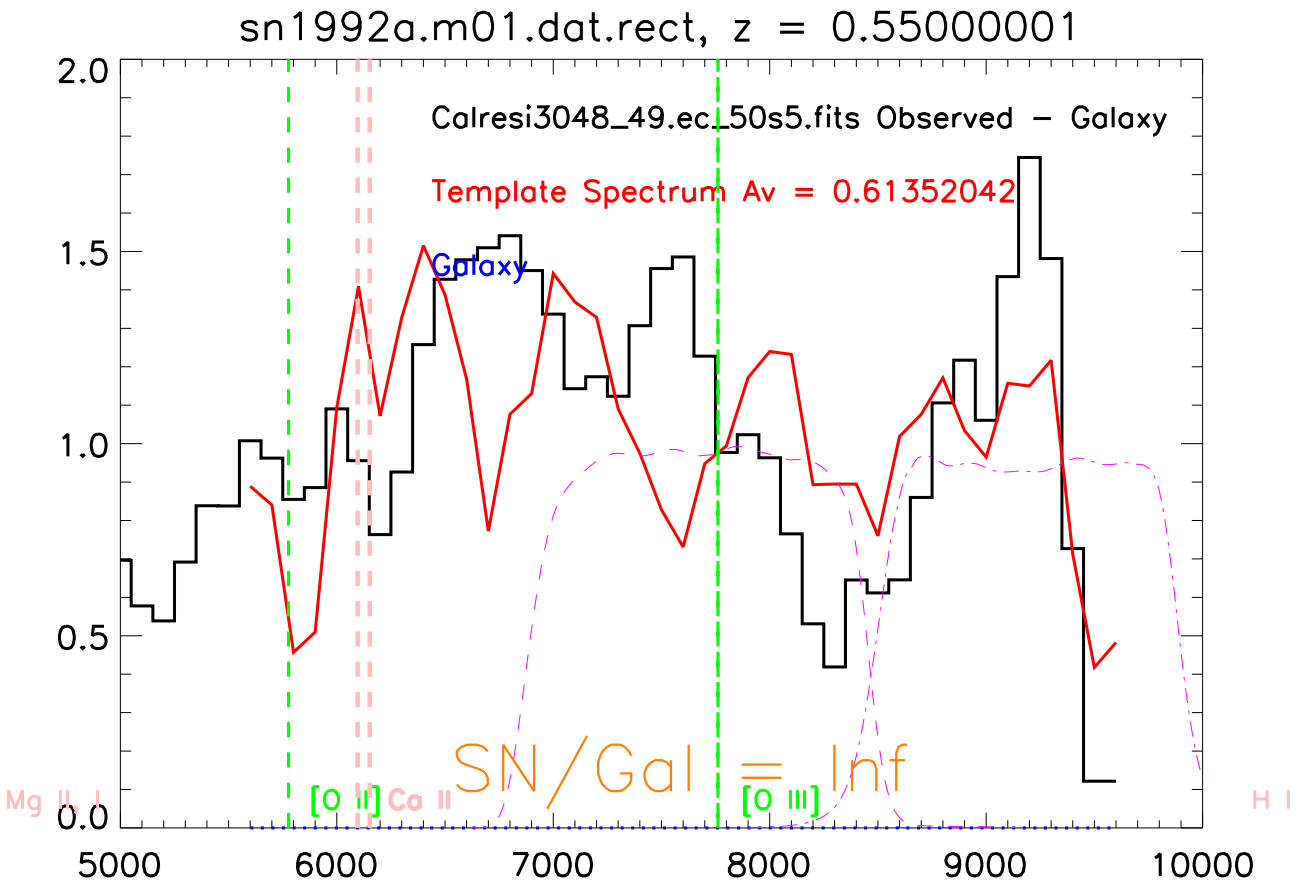
8000
9000
10000


sn1992a.m01.dat.rect, z = 0.55000001
Calresi3048_49.ec_50s5.fits Observed − Galaxy
Template Spectrum Av = 0.61352042
Galaxy
SN/Gal = Inf
[O II]
Ca II
[O III]
Mg II
H I
2.0
1.5
1.0
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0.0
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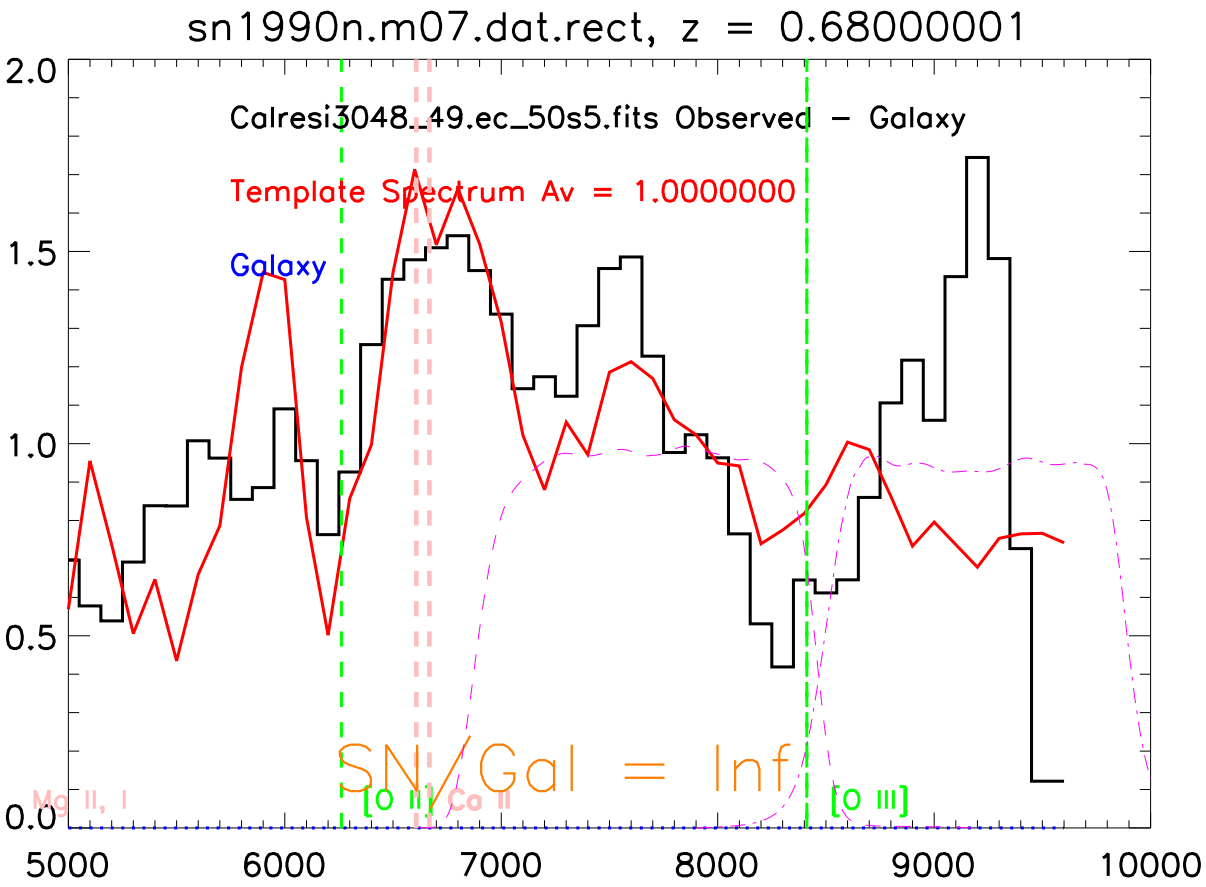
8000
9000
10000


sn1990n.m07.dat.rect, z = 0.68000001
Calresi3048..49.ec_50s5.fits Observed – Galaxy
Template Spectrum Av = 1.0000000
Galaxy
SN/Gal = Inf
Mg II, I
[O II]
Ca II
[O III]
2.0
1.5
1.0
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0.0
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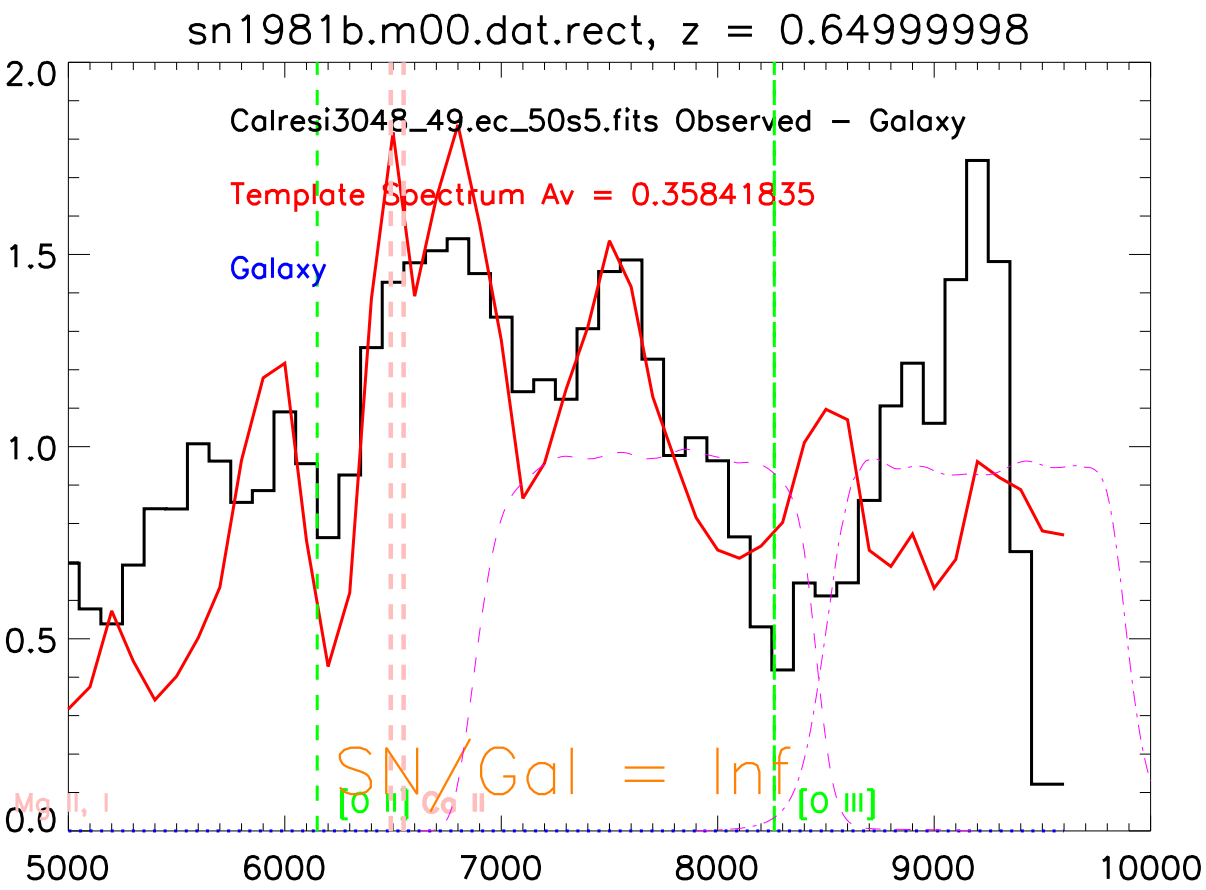
8000
9000
10000


sn1981b.m00.dat.rect, z = 0.64999998
Calresi3048_49.ec_50s5.fits Observed − Galaxy
Template Spectrum Av = 0.35841835
Galaxy
SN/Gal = Inf
[O II]
Ca II
[O III]
2.0
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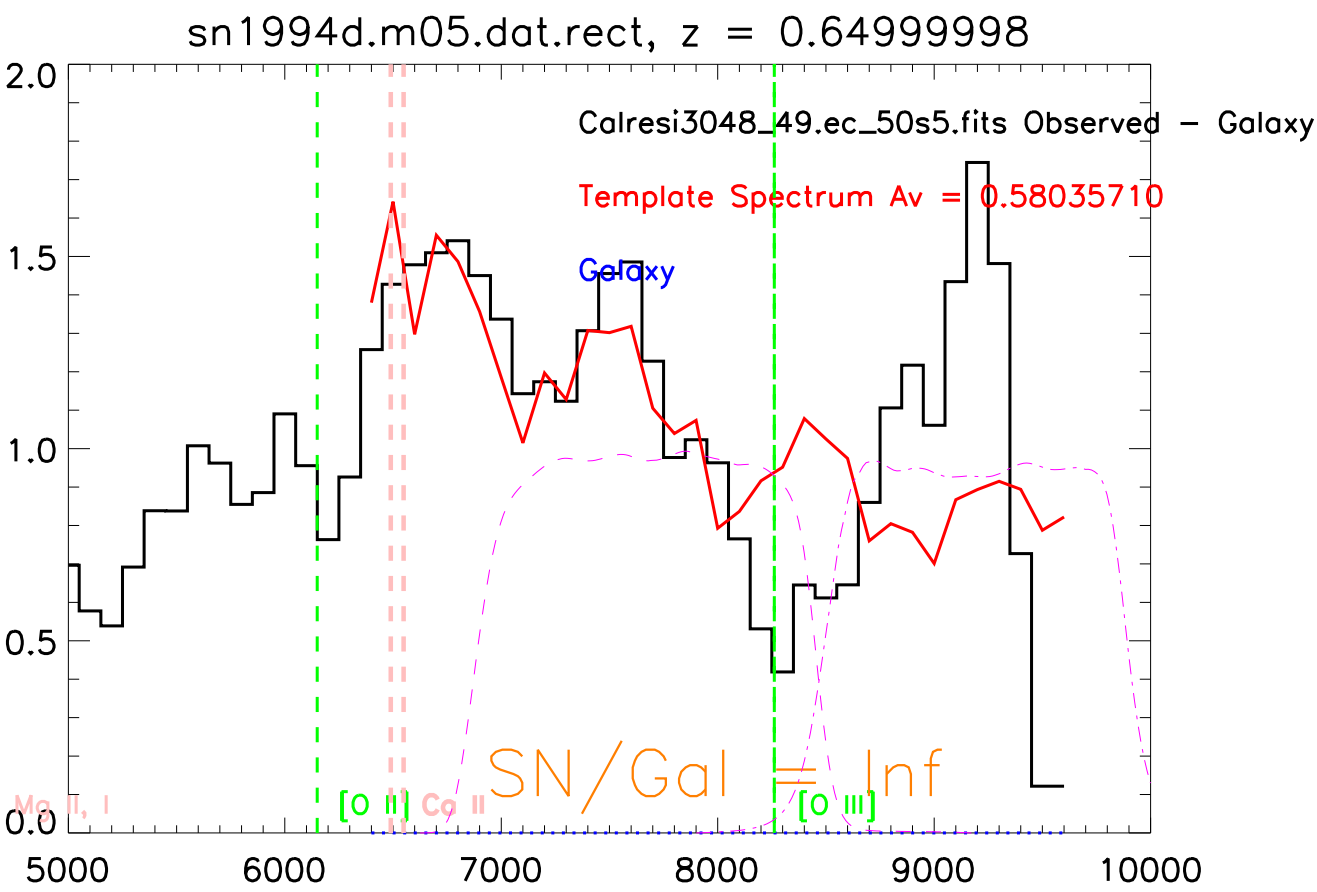
sn1994d.m05.dat.rect, z = 0.64999998
Calresi3048_49.ec_50s5.fits Observed − Galaxy
Template Spectrum Av = 0.58035710
Galaxy
SN/Gal = Inf
[O II]
Ca II
[O III]
Mg II, I
2.0
1.5
1.0
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0.0
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7000
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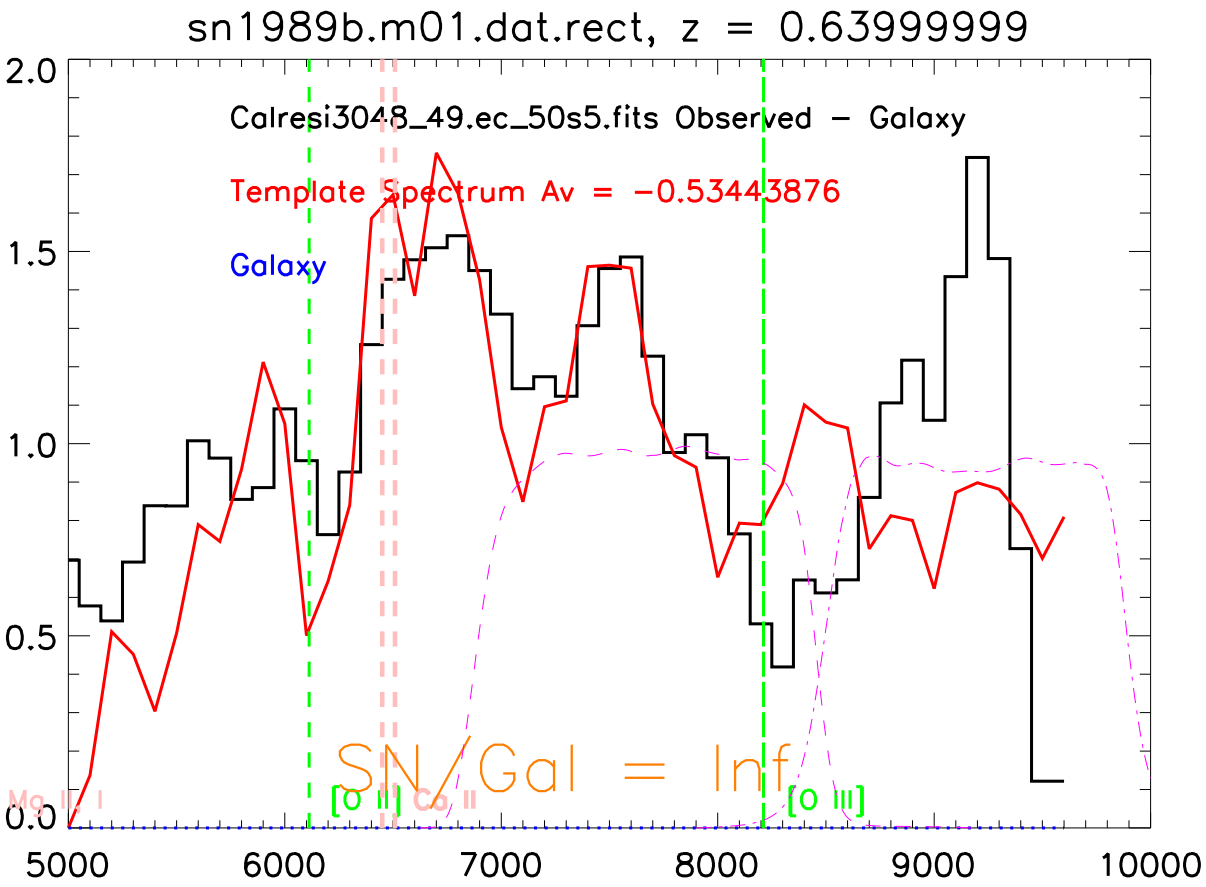
9000
10000


sn1989b.m01.dat.rect, z = 0.63999999
Calresi3048_49.ec_50s5.fits Observed − Galaxy
Template Spectrum Av = −0.53443876
Galaxy
SN/Gal = Inf
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[O III]
2.0
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1.0
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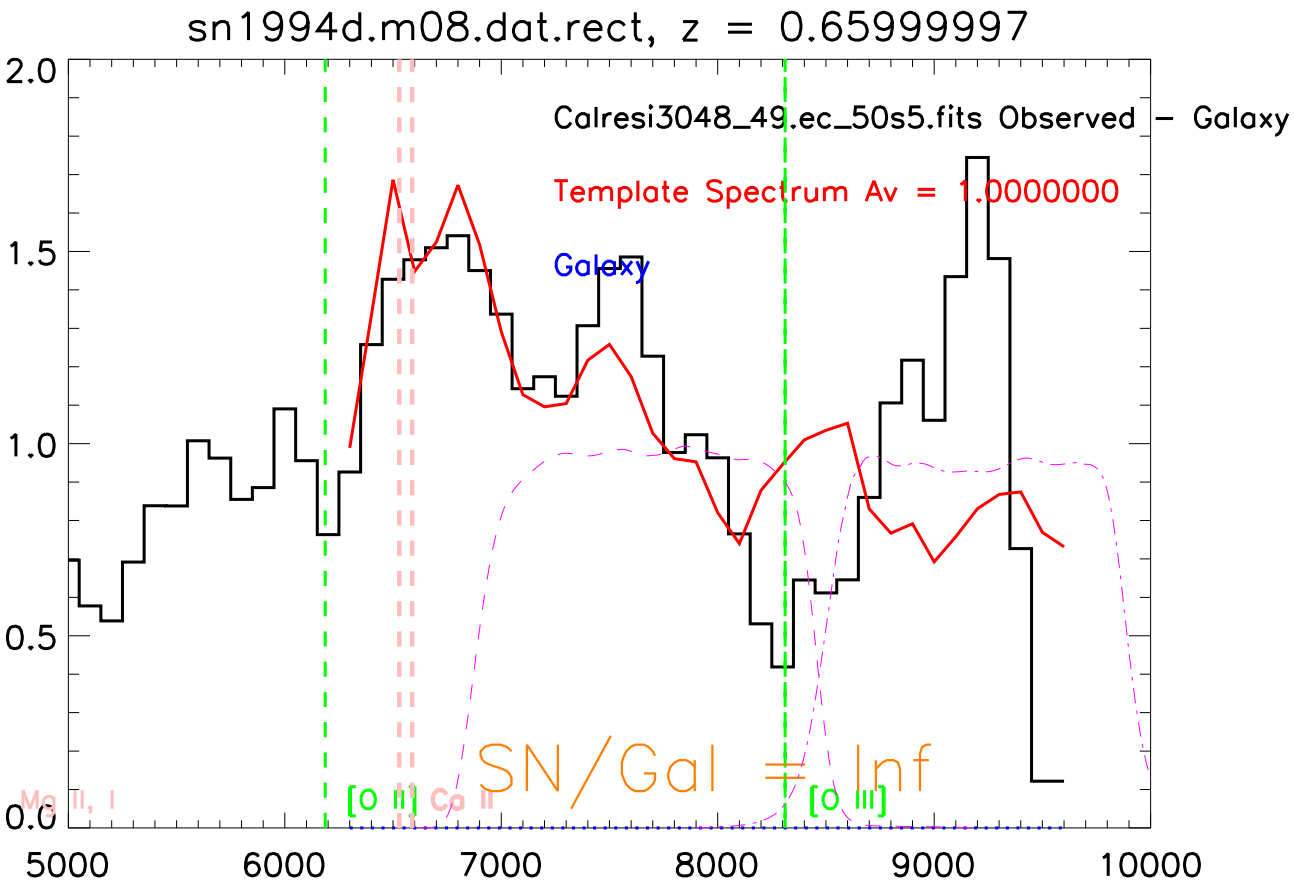
9000
10000


sn1994d.m08.dat.rect, z = 0.65999997
Calresi3048_49.ec_50s5.fits Observed – Galaxy
Template Spectrum Av = 1.0000000
Galaxy
SN/Gal = Inf
Mg II, I
[O II] Ca II
[O III]
2.0
1.5
1.0
0.5
0.0
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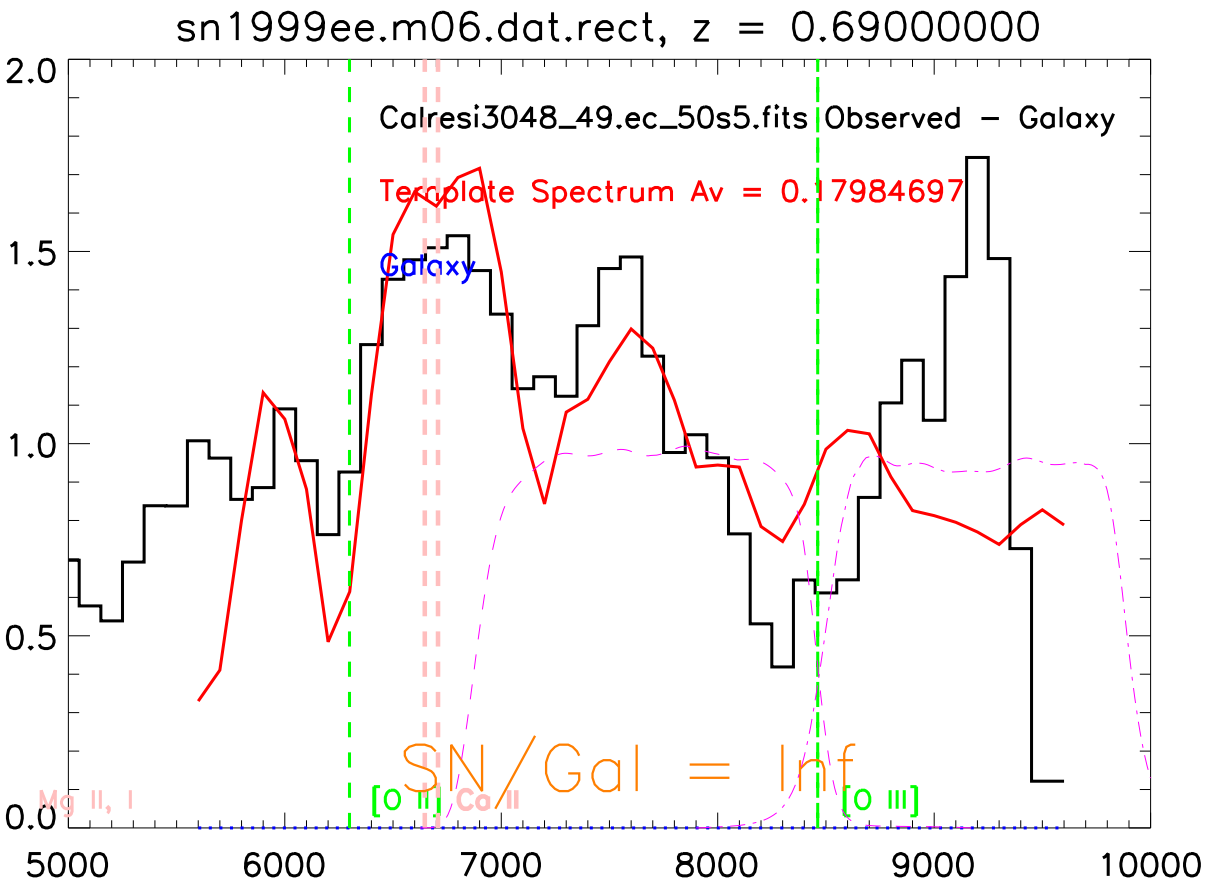
6000
7000
8000
9000
10000


sn1999ee.m06.dat.rect, z = 0.69000000
Calresi3048_49.ec_50s5.fits Observed − Galaxy
Template Spectrum Av = 0.17984697
Galaxy
SN/Gal = Inf
Mg II, I
[O II], Ca II
[O III]
2.0
1.5
1.0
0.5
0.0
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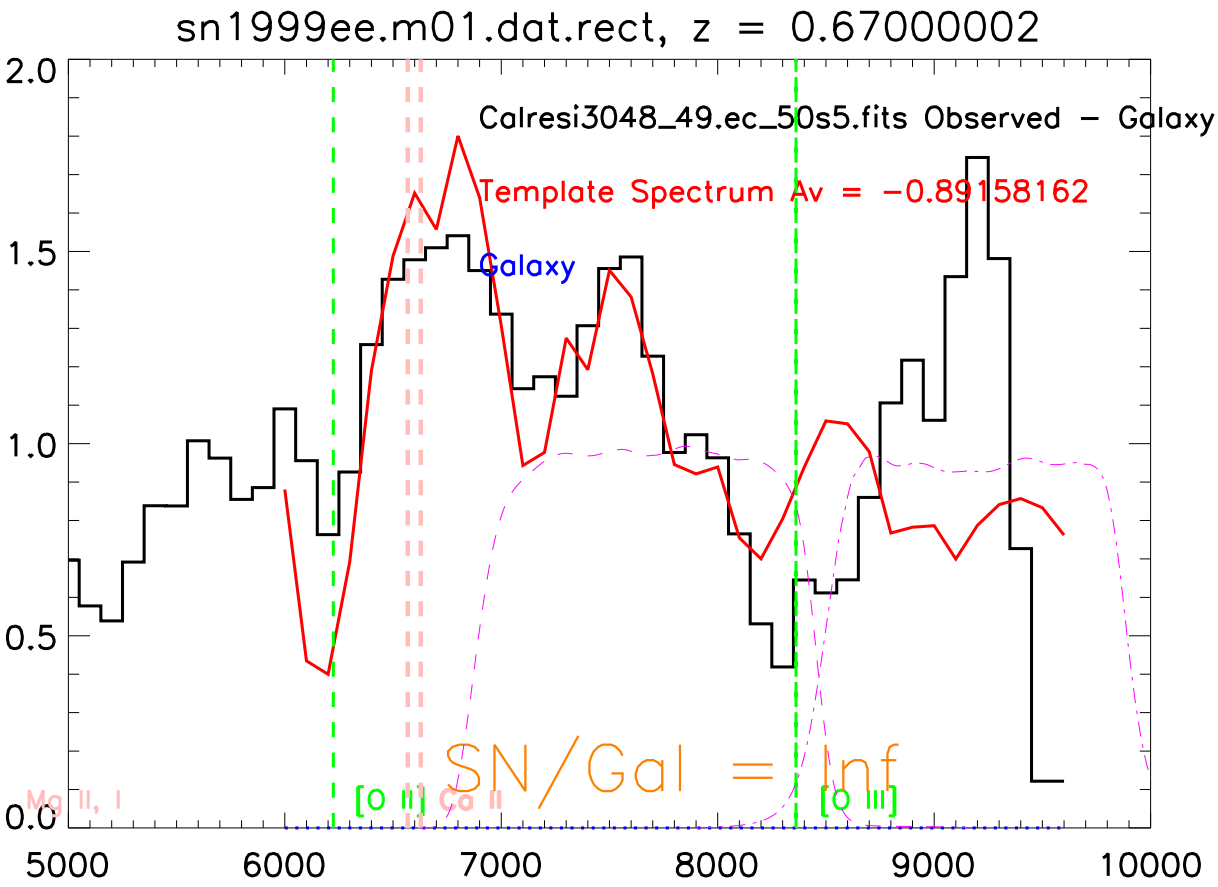
7000
8000
9000
10000


sn1999ee.m01.dat.rect, z = 0.67000002
Calresi3048_49.ec_50s5.fits Observed − Galaxy
Template Spectrum Av = −0.89158162
Galaxy
SN/Gal = Inf
Mg II, I
[O II]
Ca II
[O III]
2.0
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1.0
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0.0
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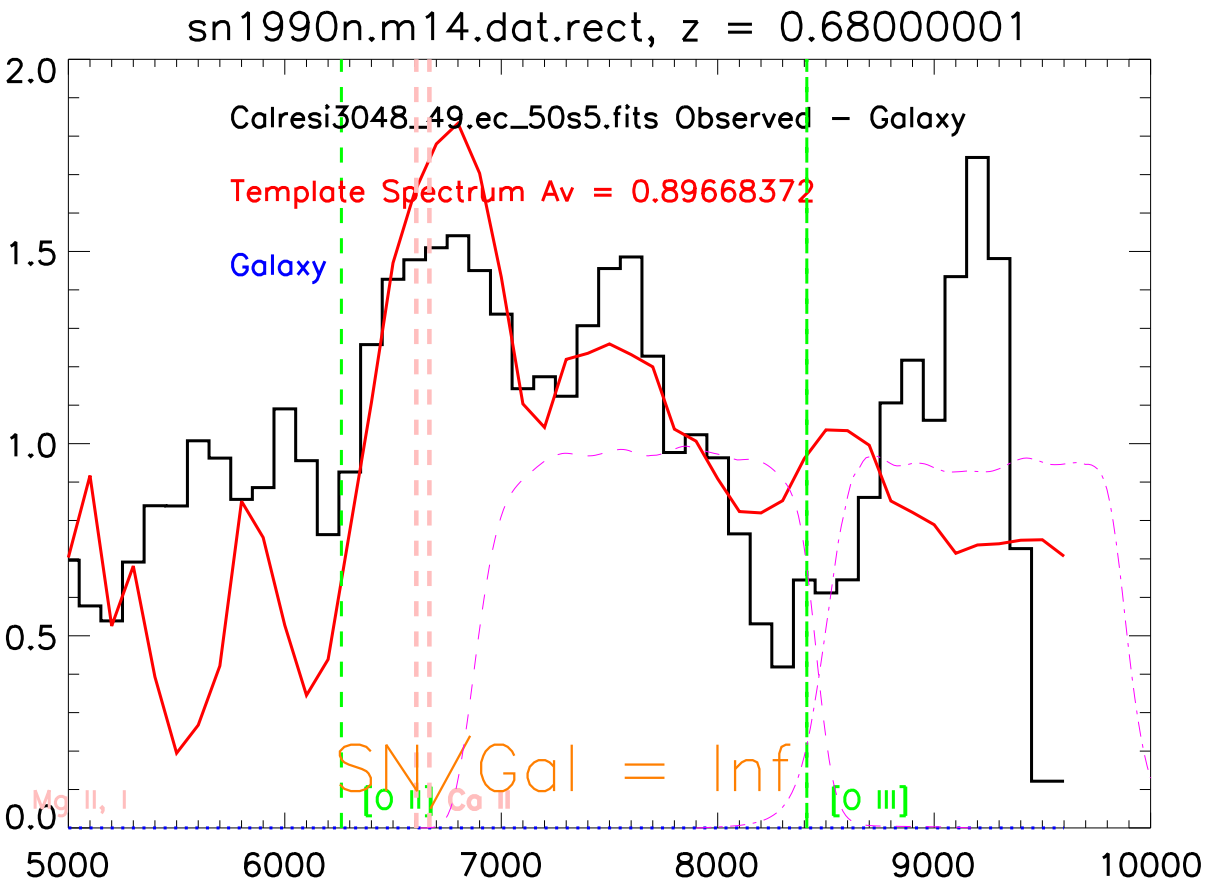
6000
7000
8000
9000
10000


sn1990n.m14.dat.rect, z = 0.68000001
Calresi3048..49.ec_50s5.fits Observed − Galaxy
Template Spectrum Av = 0.89668372
Galaxy
SN/Gal = Inf
Mg II, I
[O II]
Ca II
[O III]
2.0
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1.0
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0.0
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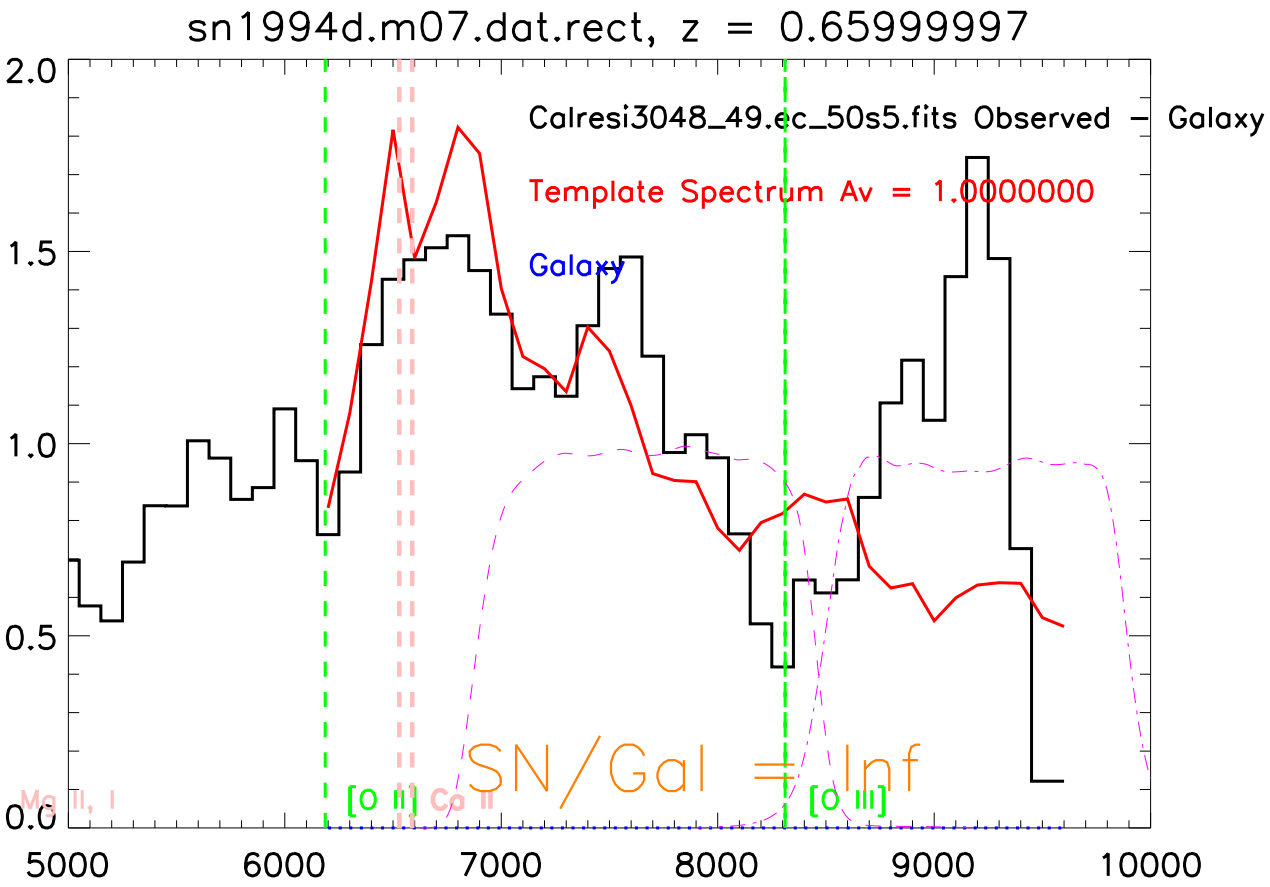
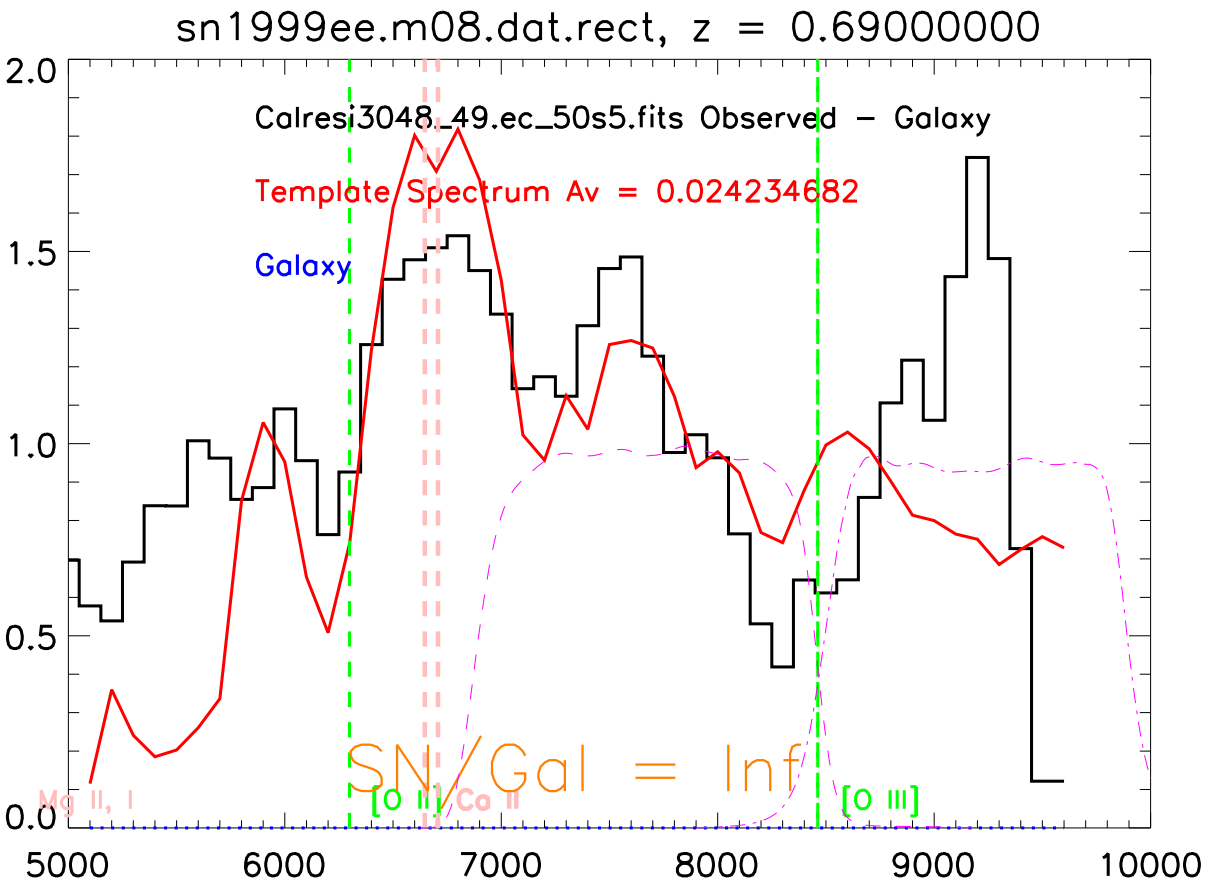
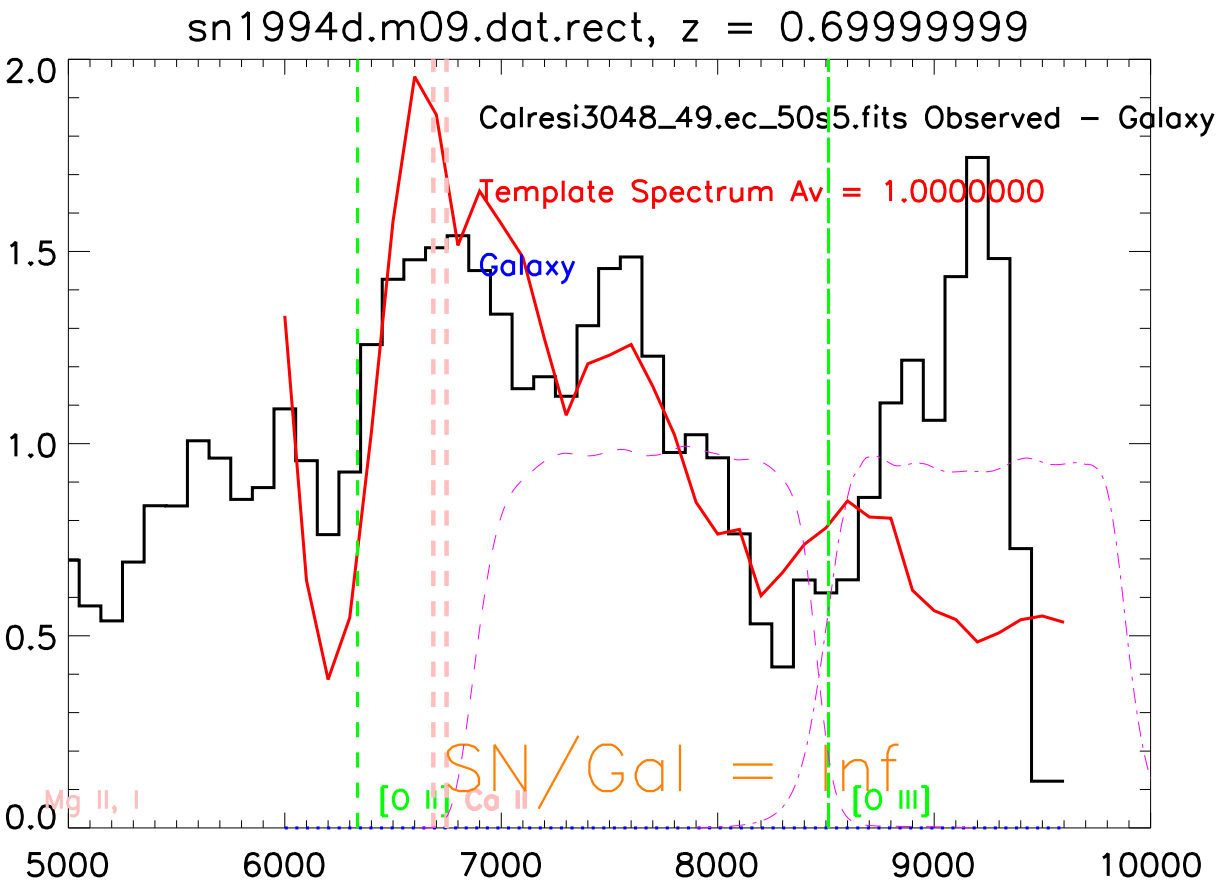
7000
8000
9000
10000


sn1994d.m07.dat.rect, z = 0.65999997
Calresi3048_49.ec_50s5.fits Observed – Galaxy
Template Spectrum Av = 1.0000000
Galaxy
SN/Gal = Inf
Mg II, I
[O II] Ca II
[O III]
2.0
1.5
1.0
0.5
0.0
5000
6000
7000
8000
9000
10000


sn1999ee.m08.dat.rect, z = 0.69000000
Calresi3048_49.ec_50s5.fits Observed − Galaxy
Template Spectrum Av = 0.024234682
Galaxy
SN/Gal = Inf
Mg II, I
[O II], Ca II
[O III]
2.0
1.5
1.0
0.5
0.0
5000
6000
7000
8000
9000
10000


sn1994d.m09.dat.rect, z = 0.69999999
Calresi3048_49.ec_50s5.fits Observed − Galaxy
Template Spectrum Av = 1.0000000
Galaxy
SN/Gal = Inf
Mg II, I
[O II]
Ca II
[O III]
2.0
1.5
1.0
0.5
0.0
5000
6000
7000
8000
9000
10000