Eruptive stars spectroscopy
Cataclysmics, Symbiotics, Novae, Supernovae

ARAS Eruptive Stars
Information letter n° 20 #2015-08 01-11-2015
Observations of October 2015

News

A faint nova in Aquila discovred on October 5th

Second symbiotic outburst of AG Peg

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ARAS Spectroscopy

ARAS Web page
http://www.astrosurf.com/aras/

ARAS Forum
http://www.spectro-aras.com/forum/

ARAS list
https://groups.yahoo.com/neo/groups/spectro-l/info

ARAS preliminary data base
http://www.astrosurf.com/aras/Aras_DataBase/DataBase.htm

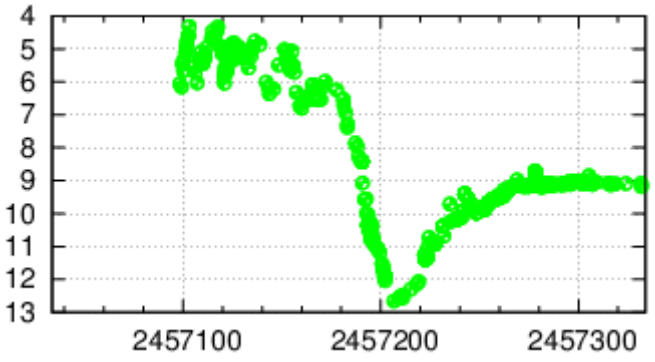
ARAS BeAM
http://arasbeam.free.fr/?lang=en

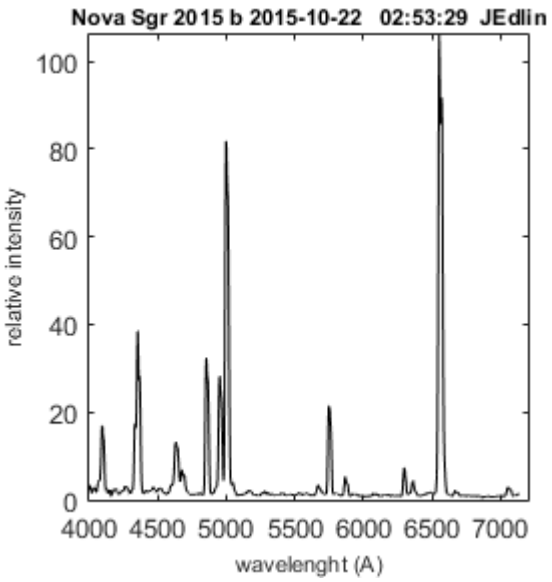
Acknowledgements to AAVSO Observers for the photometric data

Authors :
F. Teyssier, S. Shore, O.Garde, J. Montier, T.Lester, K. Graham, P. Somogyi, T. Bohlsen, D. Boyd, J. Edlin, J. Guarro, U. Sollecchia, T. Lemoult, C. Kreider, A. Wilson, P. Berardi

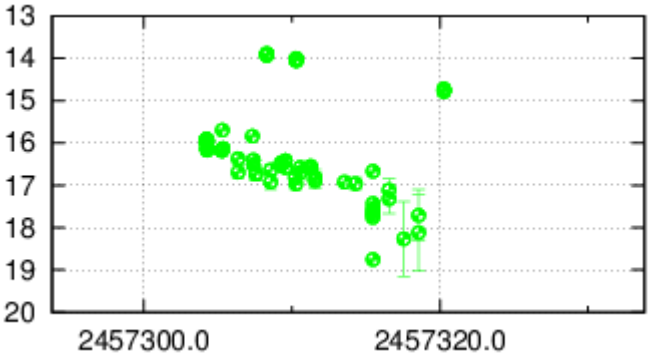
Status of current novae 2/2

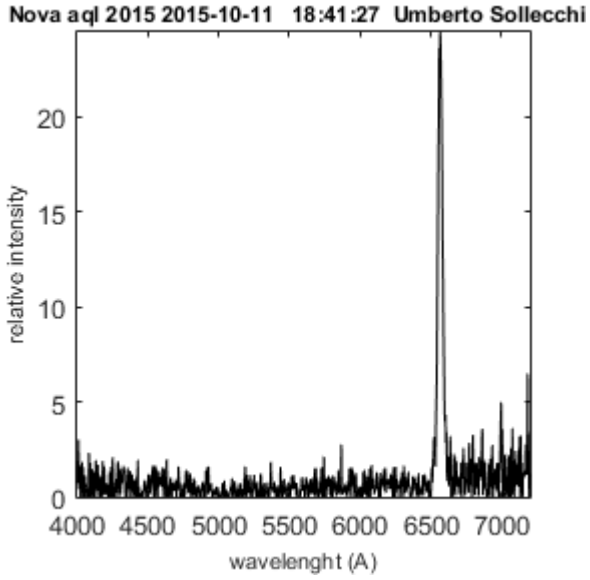
NovaSgr 2015 #2	
Maximum	21-03-2015
Days after maximum	225
Current mag V	9.1
Delta mag V	5



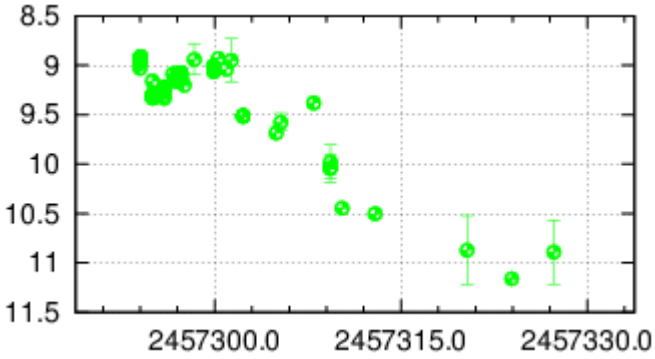


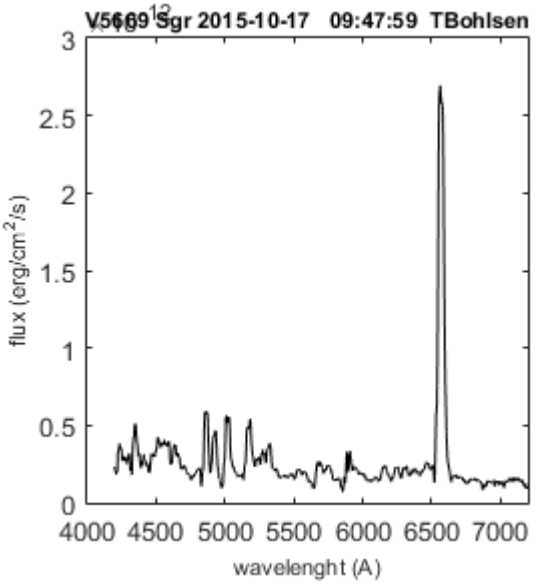
Nova Aql 2015	
Maximum	~ 08-10-2015
Days after maximum	
Current mag V	> 18
Delta mag V	> 3





NovaSgr 2015 #3	
Maximum	~ 28-09-2015
Days after maximum	34
Current mag V	10.9
Delta mag V	2.2

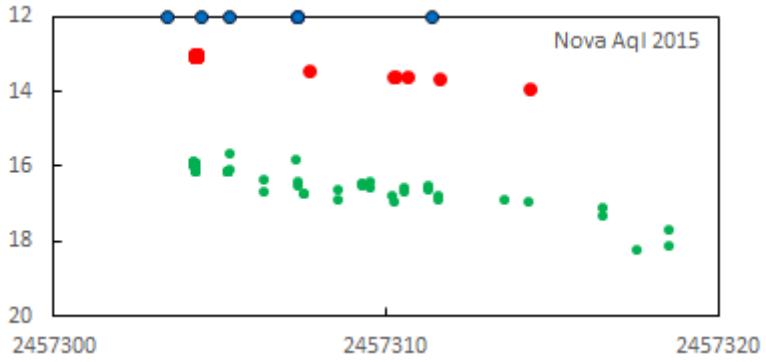




Nova Aql 2015 = V1831 Aql

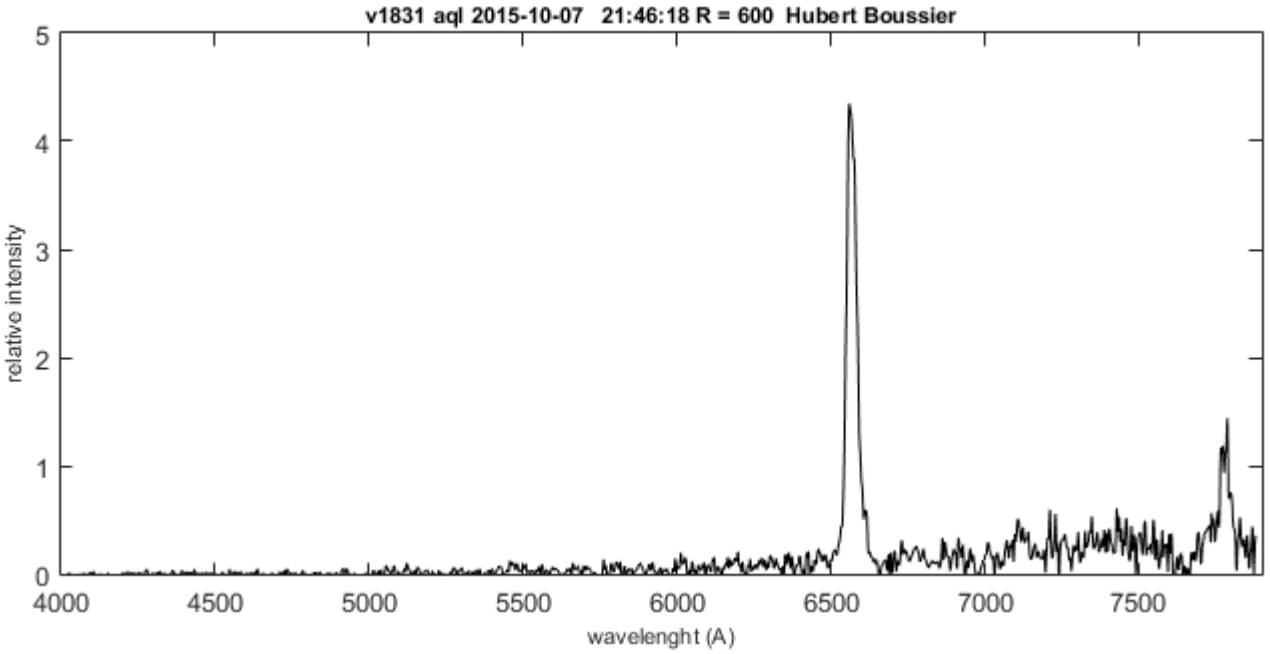
Coordinates (2000.0)	
R.A.	19 21 50.15
Dec.	+15 09 24.8

This faint and highly redenned nova has been discovered independently by Koichi Itagaki (2015 october 5.55), unfiltered magnitude = 12.4 (CBET 4147) and ASASSN (October 1.29) at mag V = 15.2 (ASASSN 2015-qd)
Spectra of this faint nova have been obtained by Hubert Boussier, Paolo Berardi and Uberto Solecchia.

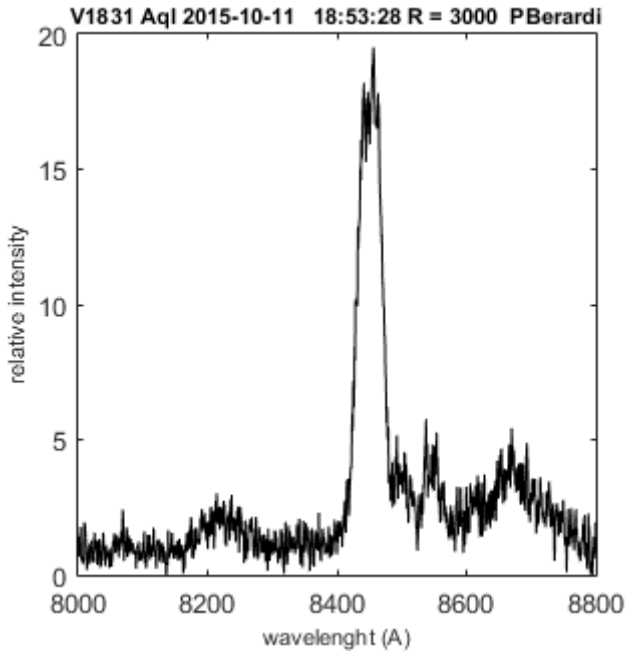


The AAVSO light curve sine 30th of march, 2015 (R & V Bands)
Spectra of ARAS database : blue points

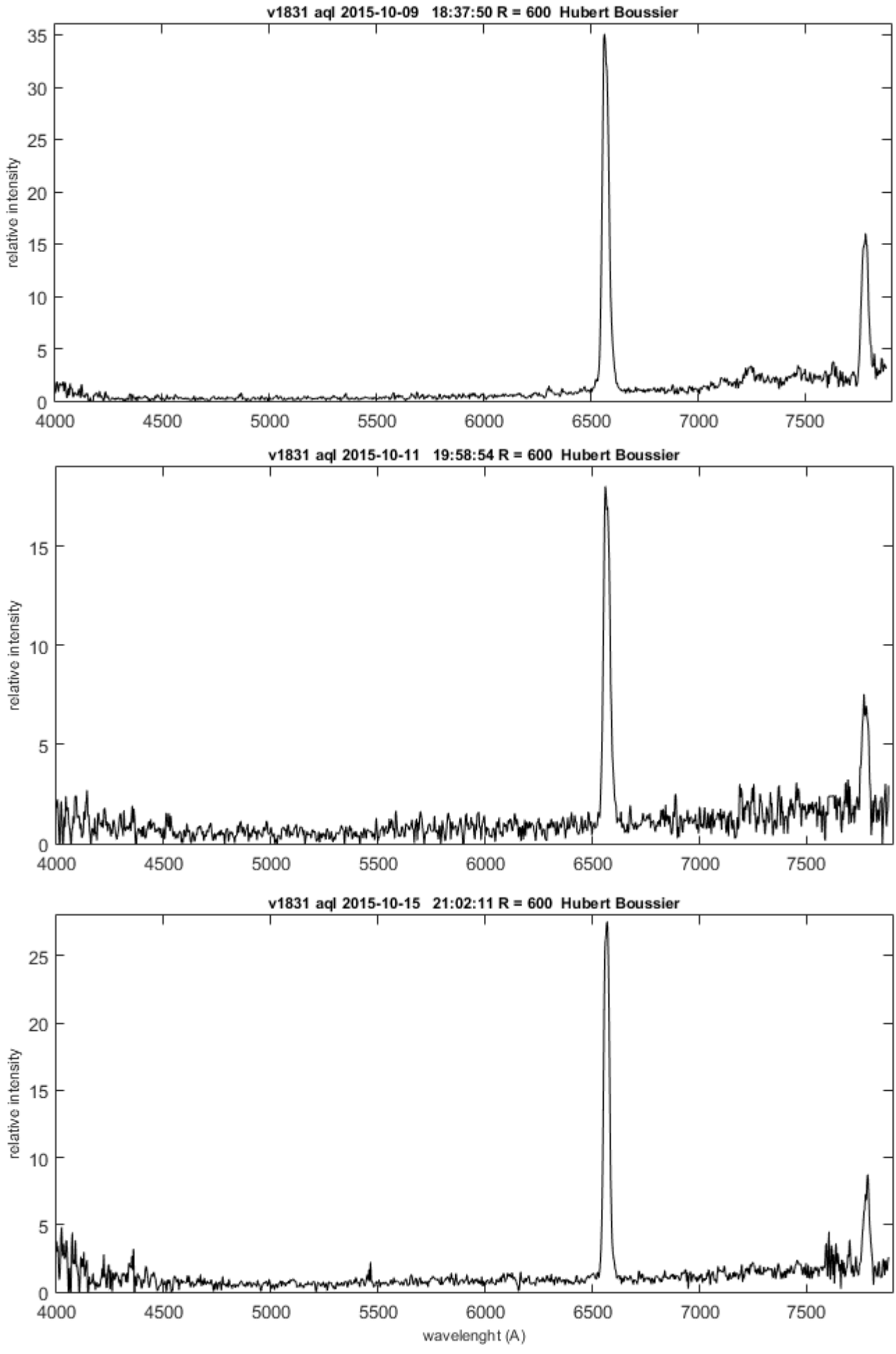
Very faint in the V band (very weak continuum and no emission lines)



First spectrum in asdb obtained by Hubert Boussier with an ALPY600
The spectrum is highly redened and only H alpha and OI 7773 appears in stong emission
The ½ FWZI of Hα is 2300 km/s



Paolo Berardi
Lhires III 600 l/mm - Near I.R.
Strong OI 8446 and Ca II 8251, 8498, 8542, 8662
½ FWZI of OI 8446 = 1250 km/s

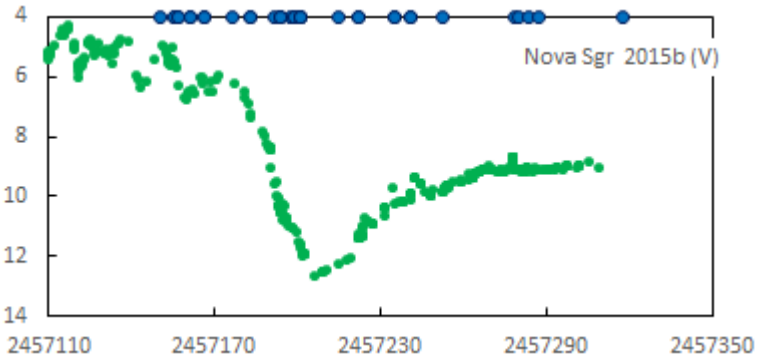


ARAS Data Base : 26 spectra : http://www.astrosurf.com/aras/Aras_DataBase/Novae/2015_NovaAql2015.htm

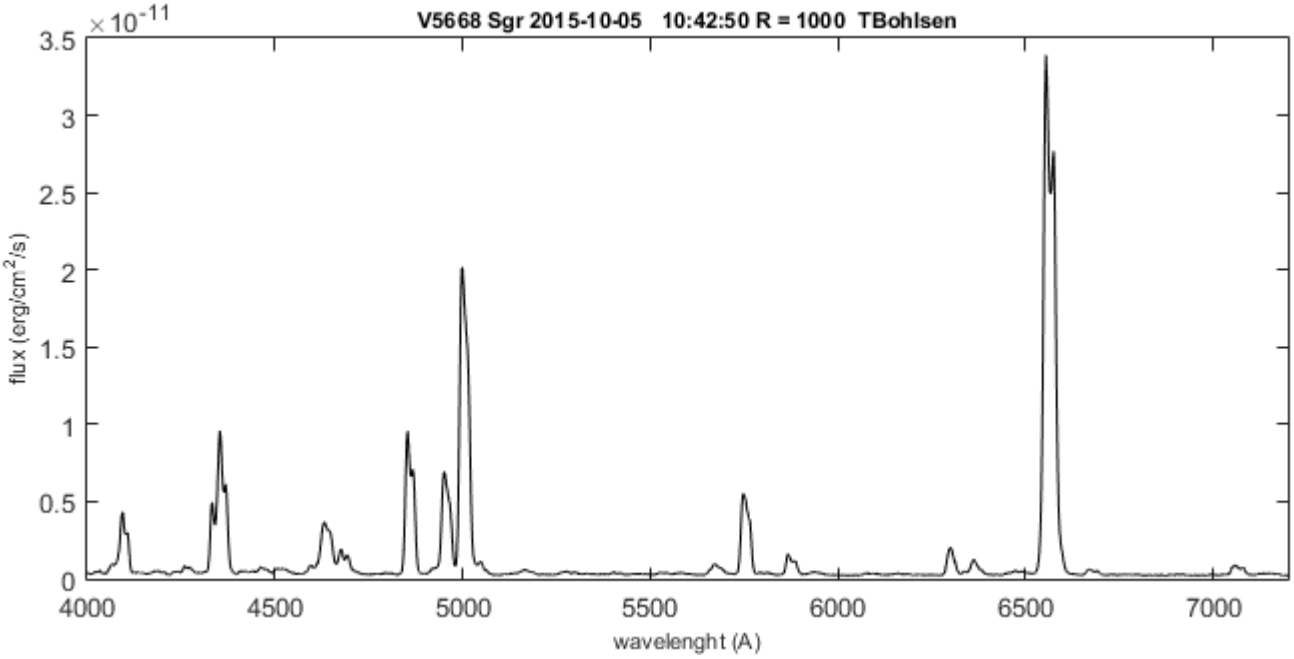
Nova Sgr 2015b = V5668 Sgr

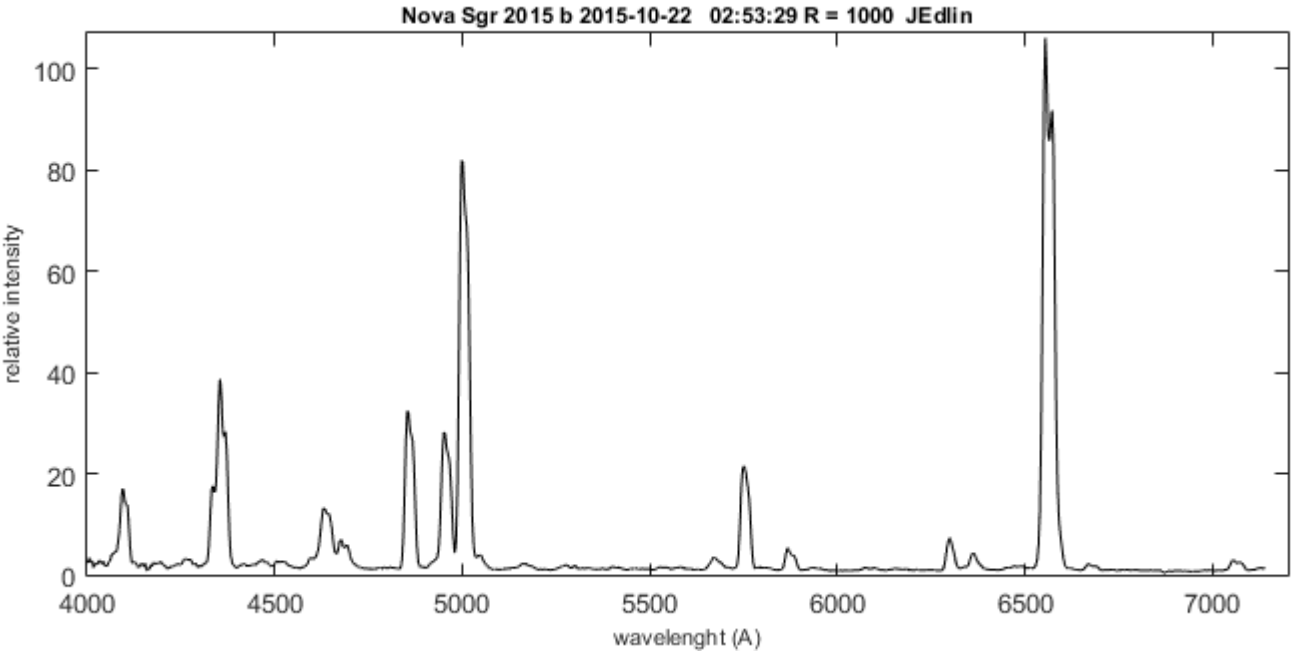
Coordinates (2000.0)	
R.A.	18 36 56.8
Dec.	-28 55 39.8

The nova is now in nebular stage
New spectrum from Jim Edlin



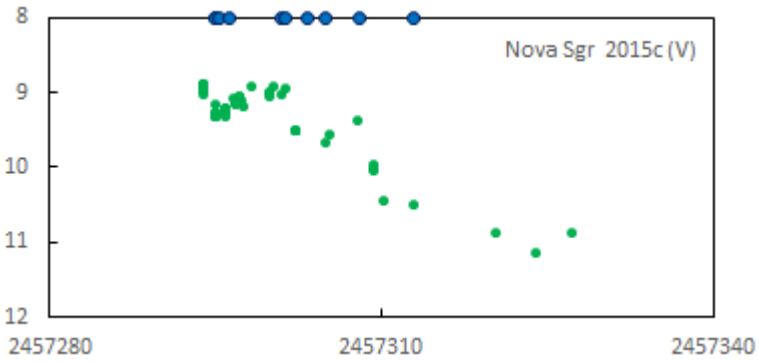
AAVSO light curve (V band)
ARAS Spectra : blue dots

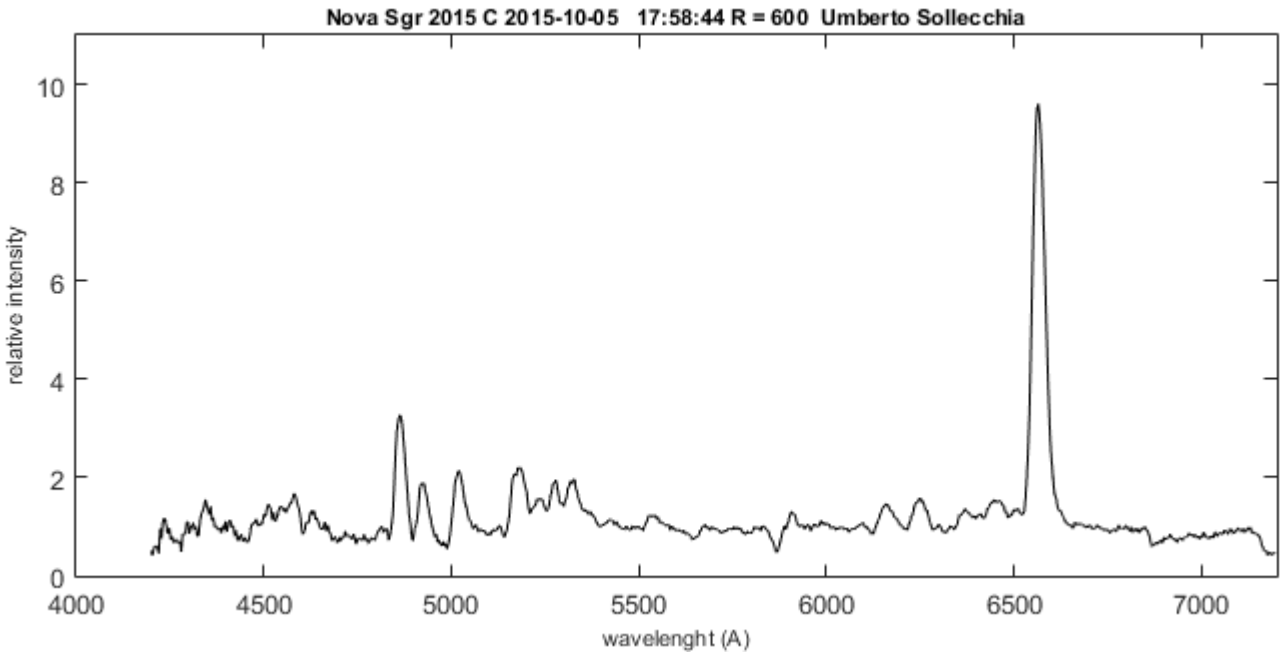


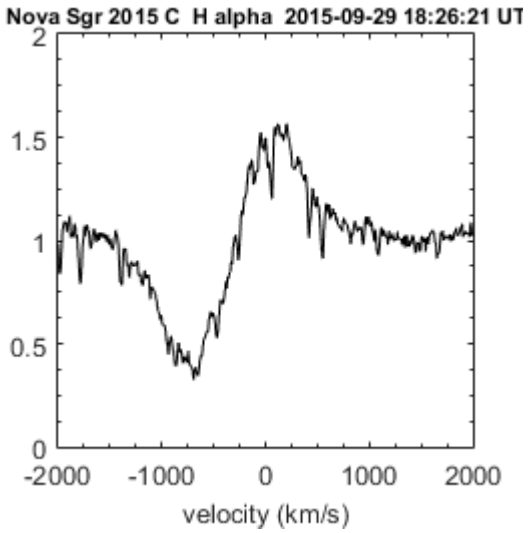


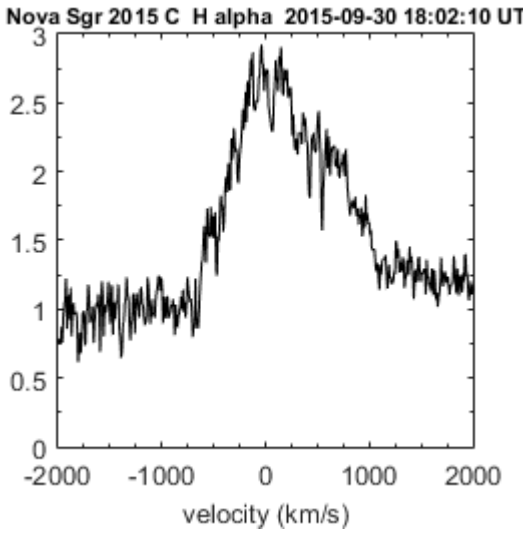
Nova Sgr 2015c = V5669 Sgr

Coordinates (2000.0)
R.A.
Dec.

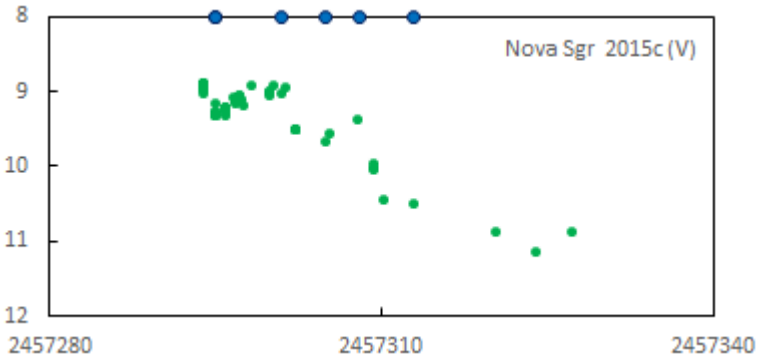


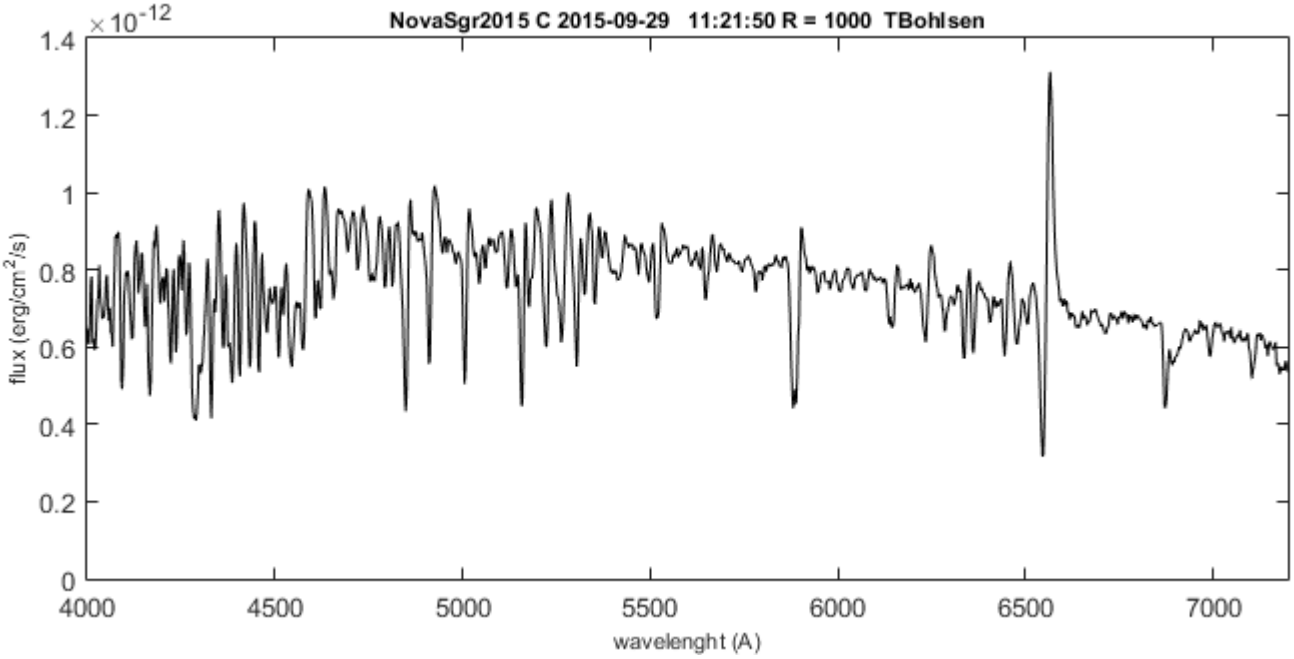


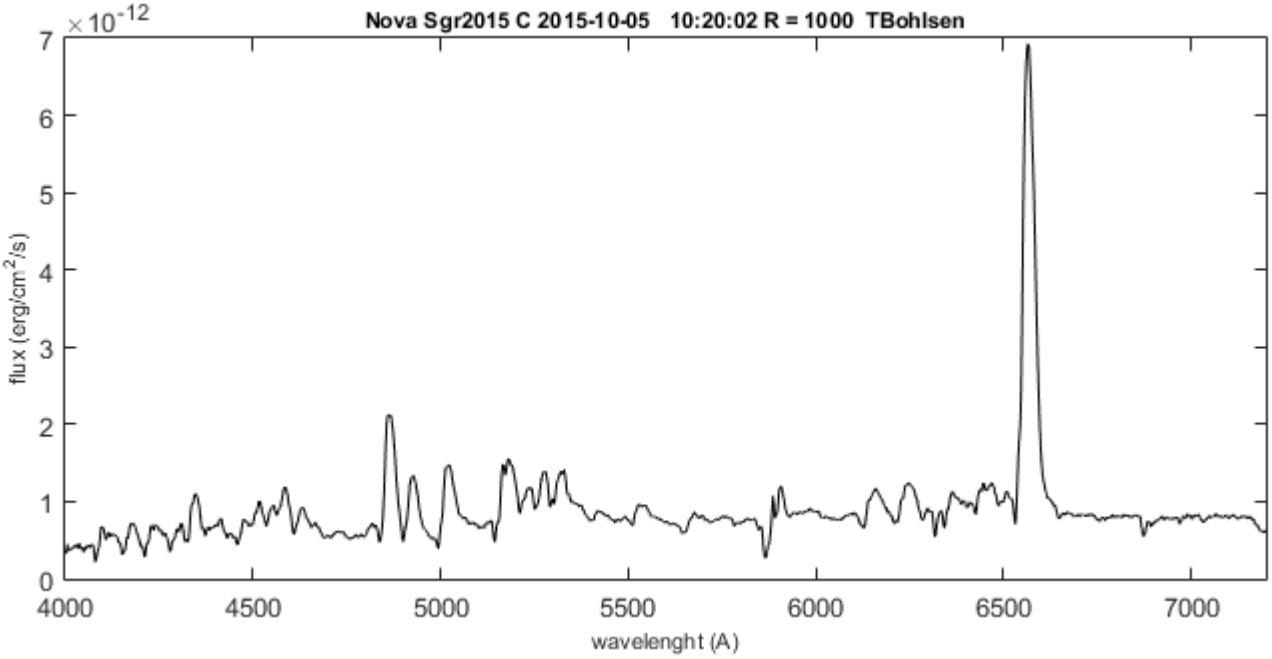


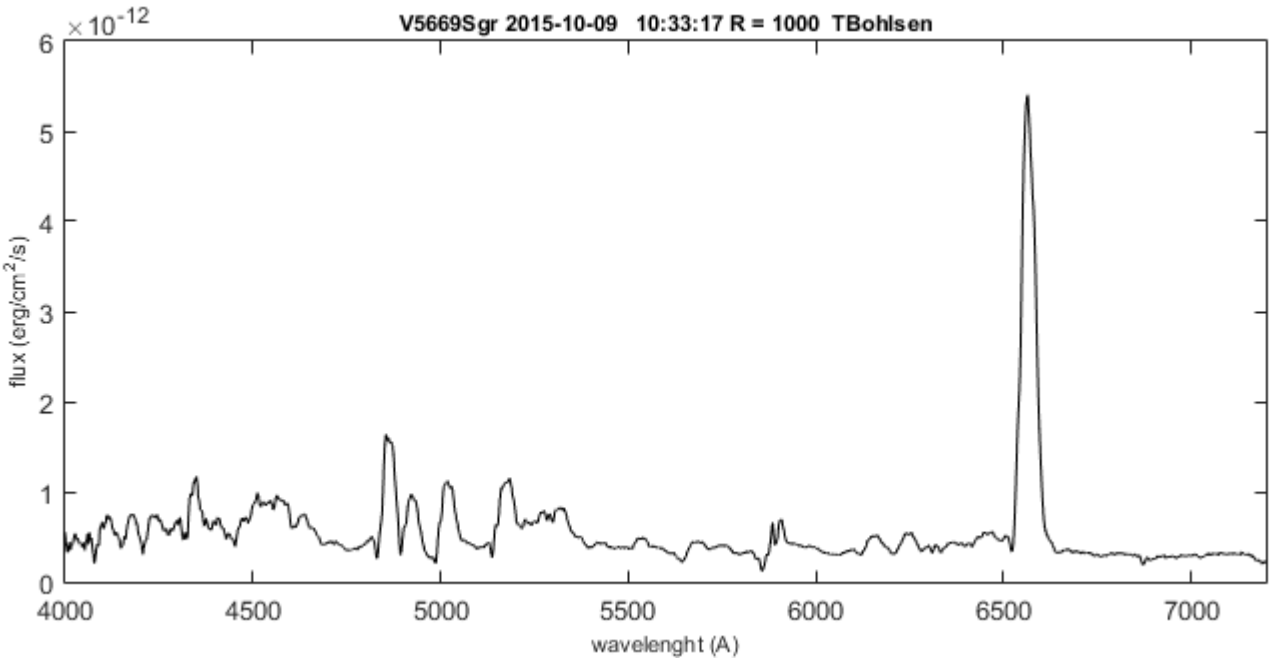


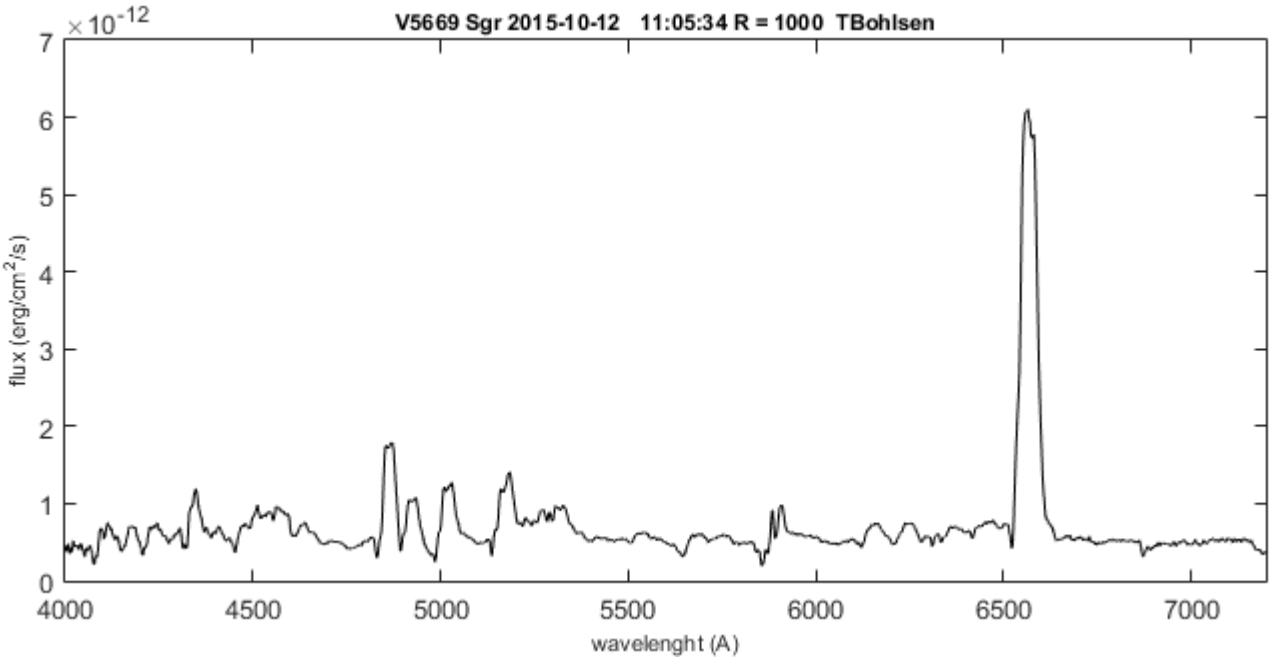
H alpha evolution in one day
Olivier Garde eShel R = 11000

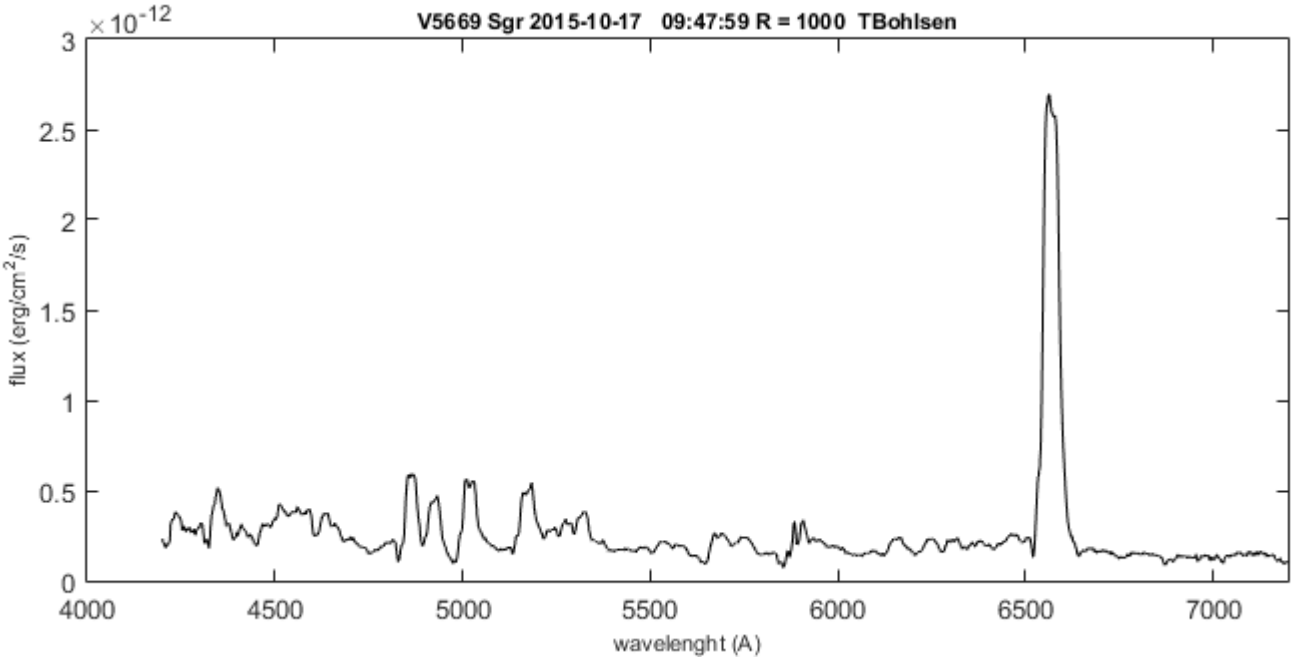

Nova Sgr 2015c (V)
8
9
10
11
12
2457280
2457310
2457340


NovaSgr2015 C 2015-09-29 11:21:50 R = 1000 TBohlsen
×10^-12
flux (erg/cm^2/s)
wavelenght (A)
0
0.2
0.4
0.6
0.8
1
1.2
1.4
4000
4500
5000
5500
6000
6500
7000


Nova Sgr2015 C 2015-10-05 10:20:02 R = 1000 TBohlsen
×10^-12
flux (erg/cm^2/s)
wavelenght (A)
0
1
2
3
4
5
6
7
4000
4500
5000
5500
6000
6500
7000


V5669Sgr 2015-10-09 10:33:17 R = 1000 TBohlsen
×10^-12
flux (erg/cm^2/s)
wavelenght (A)

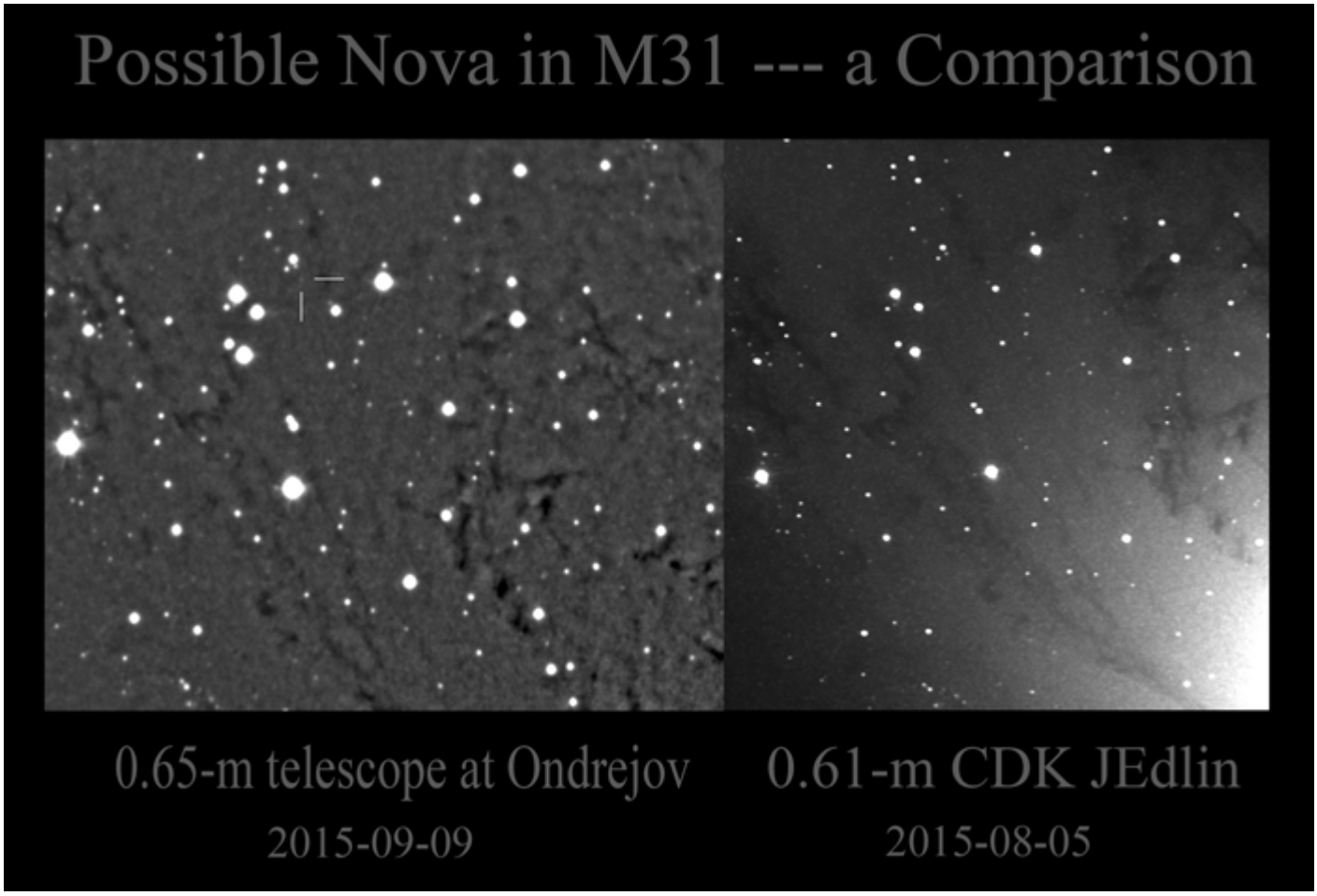

V5669 Sgr 2015-10-12 11:05:34 R = 1000 TBohlsen
×10^-12
flux (erg/cm^2/s)
wavelenght (A)


V5669 Sgr 2015-10-17 09:47:59 R = 1000 TBohlsen
×10^-12
flux (erg/cm^2/s)
wavelenght (A)

Beyond the border …
Spectroscopy of an extragalactic nova : PNV J00432114+4124597 in M31
By Jim Edlin

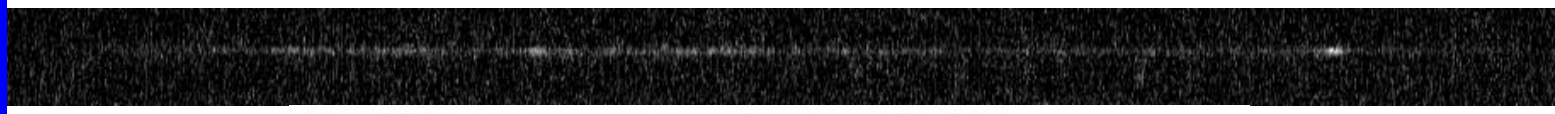
Coordinates (2000.0)	
R.A.	00 43 21.14
Dec.	+ 41 24 59.7

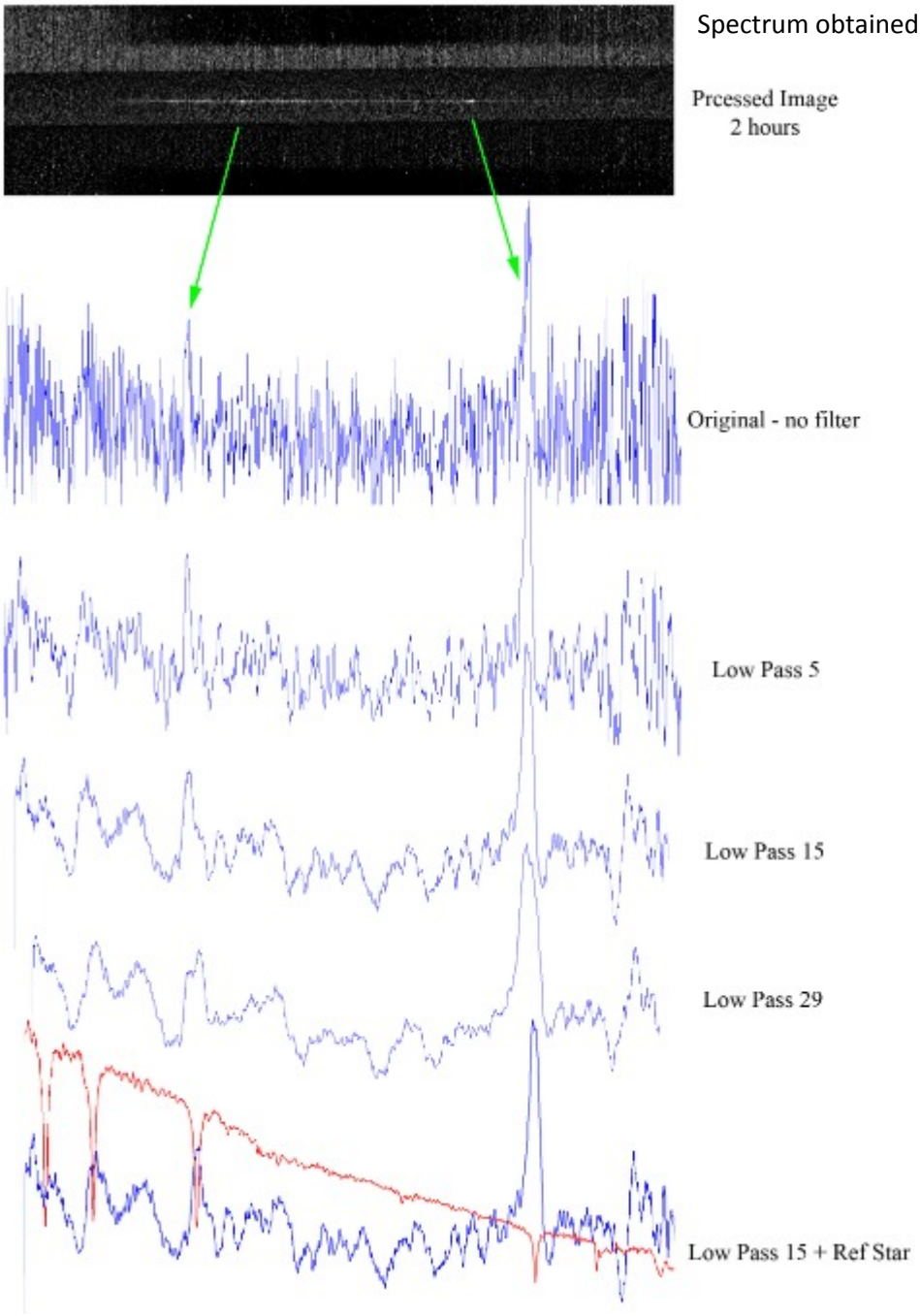
The nova PNV J00432114+4124597 has been discovered by Ondrejov Observatory (ATel 8074). The photometry obtained the 29th of september puts the objet in the group of luminous nova. Upon the suggestion of Steve Shore, Jim Edlin tried to record the spectrum of this extragalactic nova with his CDK 24 " and a LISA spectrographe.
When he got his first spectrum, the nova had declined to mag V = 16.8 and R = 16.5 (ATel



They had the discovery image in the link. That got me thinking about if I could see the same field in a recent image of the center of M31 I took back in August with the 24" CDK. Interesting I have about the same resolution and magnitude limit in my 10 min image as their 990 sec image. The telescopes are about the same size, 0.65 vs 0.61 meter. I can see all the same faint stars as they have but the nova in not at all seen in my image. This suggests that the star was pre nova on my image and well below the 18-20th mag range. See my comparison. My image is just a very tiny section of the original full 16803 ccd frame. This was kind of cool to do. Also it may be very possible to get spectrum if it has brightened to say 15th mag or so.

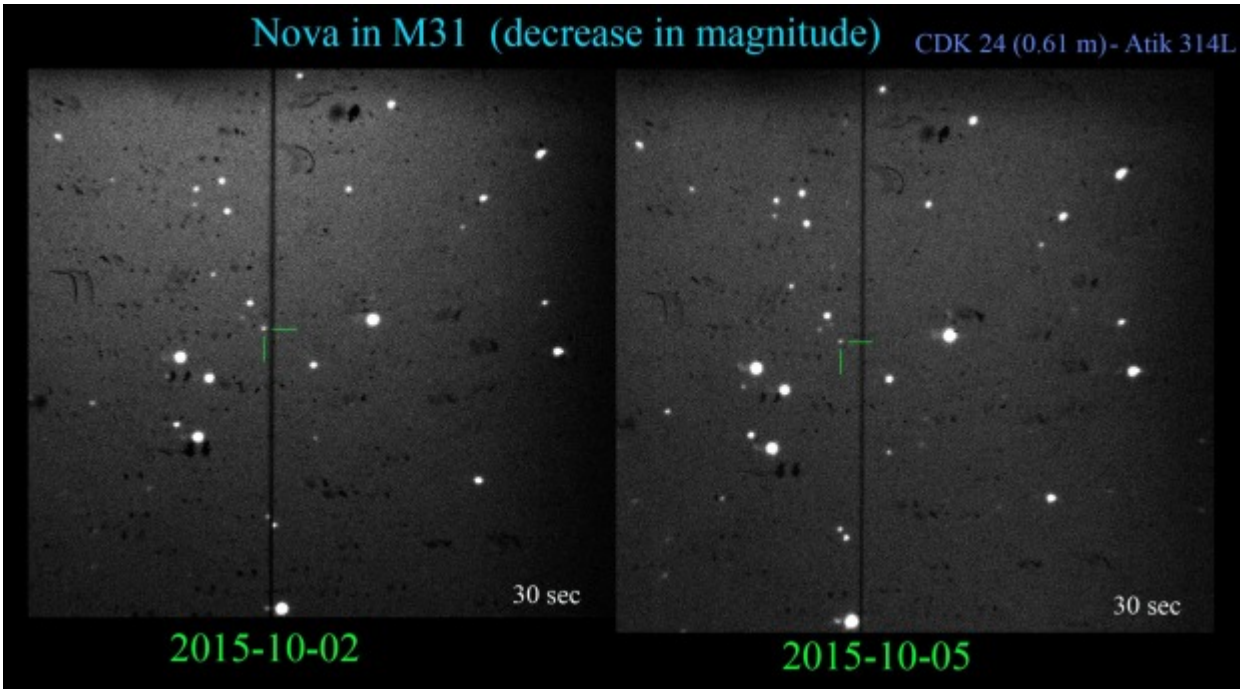
Spectroscopy of an extragalactic nova : PNV J00432114+4124597 in M31
By Jim Edlin





This is the spectrum of M31 nova. The data are very poor with very high noise. I am sending you the stacked and processed image made in ISIS as well as a jpg cropped view of the spectral image. Also included was my manual process of the nova in Vspec (instrument corrected) as well as several versions of the spectrum after various Low Pass filtering in Vspec. Also is a jpg mosaic of all the data for comparison from the original image at top to the most filtered spectrum near bottom. On spectrum at bottom has also the reference star in it for comparison to the Balmer series. I think the largest peaks in the spectrum are probably correct and most are the balmer emissions but the medium sized peaks could all be noise. Wish I could get the spectrum taken by the ATEL group with the 2 meter telescope for comparison. That spectrum was at R-350. ISIS processed the spectrum but when you look at it there are no peaks, just noise. So ISIS is not getting the correct area for extraction of the spectra. I find it hard to believe the nova is at 14.5 give that we all have taken many nova at 14-15 mag and get strong emission peaks. Of course this nova is early and much of the light still in the continuum so less for the peak emission lines possibly. But a very difficult target. The nova easily fit in the slit so no light loss from the edges of the slit. Unless I have a problem with my LISA, a very difficult target. By the way the spectrum taken was around 2015-10-04.0800 UT and was 2 hours exposure with CDK 24.

I just need a BIGGER TELESCOPE!!



Hi Steve and Francois, last night here was absolutely clear. I again went out and tried to do the nova in M31 but with the same results. I did 30 minutes than felt it was not worth to go further. My spectra show definitely the Ha and Hb lines and ill defined signal mostly in the green blue area of spectrum but line profiles just not visible in all the noise. It still seems odd to me that my spectra have such low signal on a target supposedly around 14.5 mag. To me this target is much more faint than SS433. But again maybe it has to do with the way the light is distributed through out the spectrum. I mean I am note getting much more signal than I did with my recent spectrum of Nova Mon 2012 which is at 17+ mag. This is just dismal results.
05-10-2015

The evaluation of Jim is confirmed by Ondrejov photometry published in ATel 8144

Selected list of bright symbiotics stars of interest

Target						Refrence Star					
#	Name	AD (2000)	DE (2000)	Mag V *	Interest	Name	AD (2000)	DE (2000)	Mag V	E(B-V)	Sp Type
1	AX Per	1 36 22.7	54 15 2.5	11.6	++	HD 6961	01 11 06.2	+ 55 08 59.6	4.33	0	A7V
2	UV Aur	5 21 48.8	32 30 43.1	10		HD 39357	05 53 19.6	+ 27 36 44.1	4.557		A0V
3	ZZ CMi	7 24 13.9	8 53 51.7	10.2		HD 61887	07 41 35.2	+ 03 37 29.2	5.955		A0V
4	BX Mon	7 25 24	-3 36 0	10.4	+	HD 55185	07 11 51.9	- 00 29 34.0	4.15		A2V
5	V694 Mon	7 25 51.2	-7 44 8	10.5	++	HD 55185	07 11 51.9	- 00 29 34.0	4.15		A2V
6	NQ Gem	7 31 54.5	24 30 12.5	8.2		HD 64145	07 53 29.8	+ 26 45 56.8	4.977		A3V
7	T CrB	15 59 30.1	25 55 12.6	10.4	++	HD 143894	16 02 17.7	+ 22 48 16.0	4.817	0	A3V
8	AG Dra	16 1 40.5	66 48 9.5	9.7	++	HD 145454	16 06 19.7	+ 67 48 36.5	5.439	0	A0Vn
9	RS Oph	17 50 13.2	-6 42 28.4	10.4	++	HD 164577	18 01 45.2	+ 01 18 18.3	4.439	0	A2Vn
10	YY Her	18 14 34.3	20 59 20	12.9	++	HD 166014	18 07 32.6	+ 28 45 45.0	3.837	0.02	B9.5V
11	V443 Her	18 22 8.4	23 27 20	11.3	++	HD 171623	18 35 12.6	+ 18 12 12.3	5.79	0	A0Vn
12	BF Cyg	19 23 53.4	29 40 25.1	10.8	++	HD 180317	19 15 17.4	+ 21 13 55.6	5.654	0	A4V
13	CH Cyg	19 24 33	50 14 29.1	7	+	HD 184006	19 29 42.4	+ 51 43 47.2	3.769	0	A5V
14	CI Cyg	19 50 11.8	35 41 3.2	10.5	++	HD 187235	19 47 27.8	+ 38 24 27.4	5.826	0.02	B8Vn
15	StHA 190	21 41 44.8	2 43 54.4	10.3	+	HD 207203	21 47 14.0	+ 02 41 10.0	5.631	0	A1V
16	AG Peg	21 51 1.9	12 37 29.4	8.6	++	HD 208565	21 56 56.4	+ 12 04 35.4	5.544	0	A2Vnn
18	Z And	23 33 39.5	48 49 5.4	9.65	++	HD 222439	23 40 24.5	+ 44 20 02.2	4.137	0	A0V
19	R Aqr	23 43 49.4	-15 17 4.2	9.9	++	HD 222847	23 44 12.1	- 18 16 37.0	5.235	0	B9V

Mag V * : 01-04-2014

Observing

(Suggestions, but *all* the symbiotic deserve attention)

CH Cygni campaign

CH Cygni remains at a high level of activity.

AG Peg : historical outburst

CI Cygni, BF Cygni

The season of classical Z And, AX Per
low ionization EG And

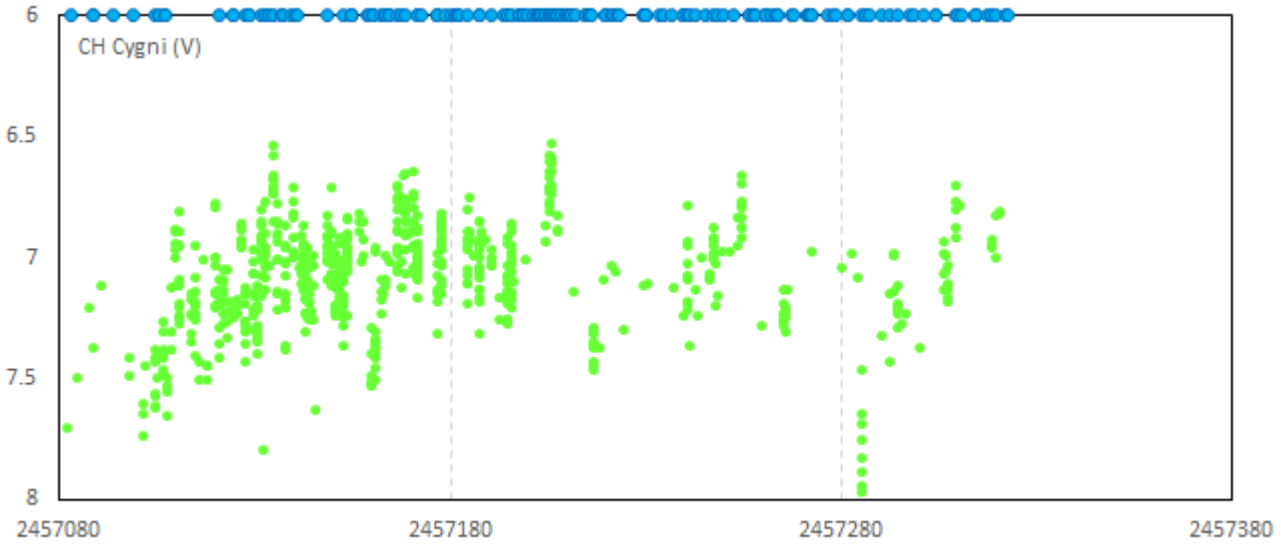
In the morning sky :

V694 Mon (high cadency coverage should be welcome)
BX Mon
ZZ CMi

CH Cygni campaign

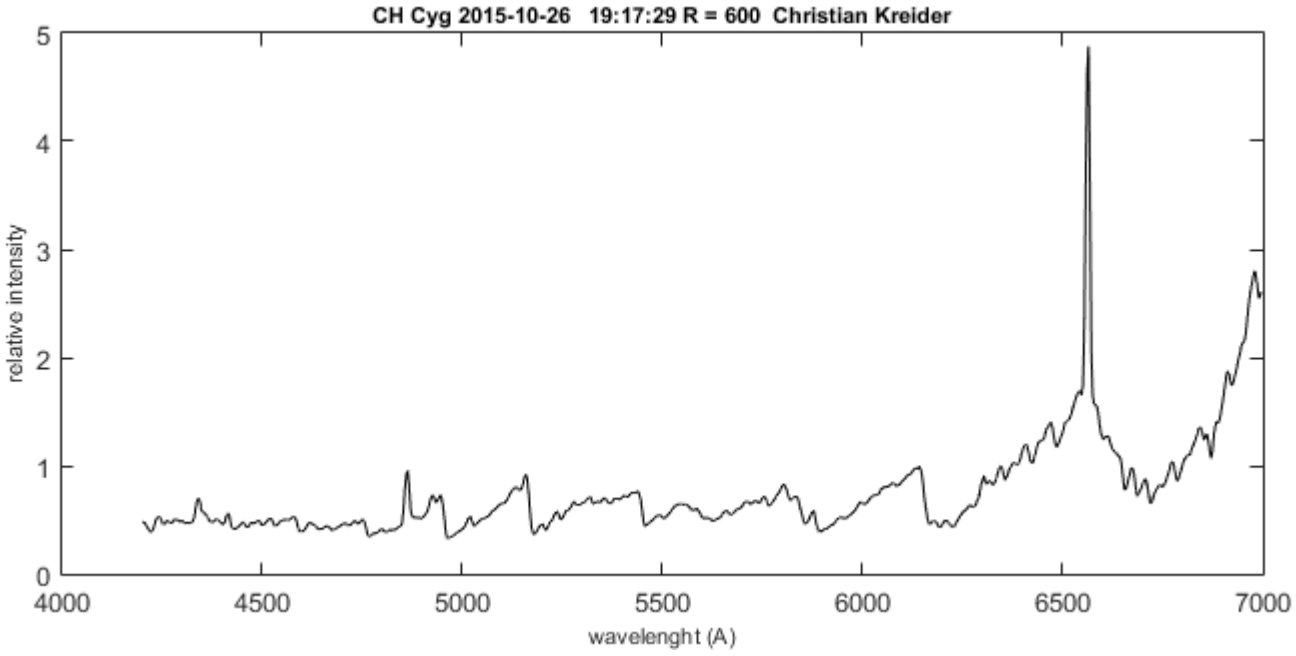
Coordinates (2000.0)	
R.A.	19 24 33.0
Dec.	+50 14 29.1

23 spectra + time series in September 2015



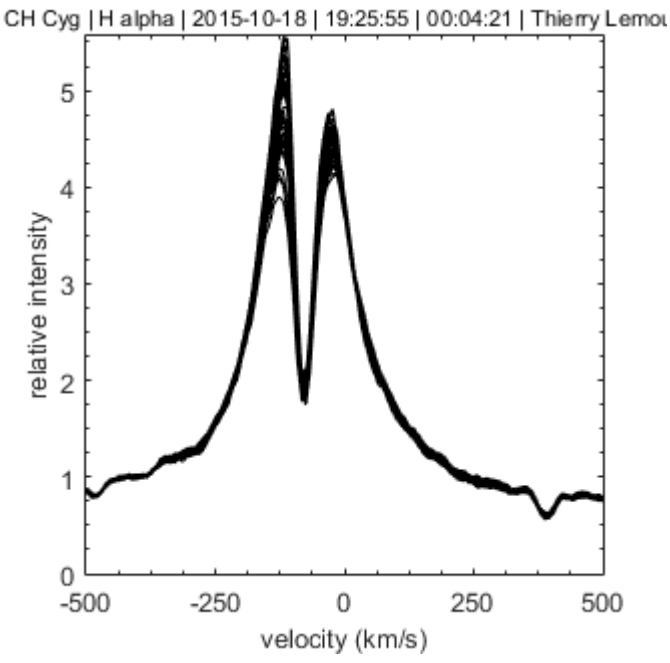
AAVSO V band light curve in 2015
CH Cyg remains in high state with a flickering of about 0.3-0.4 mag
ARAS observations : blue dots

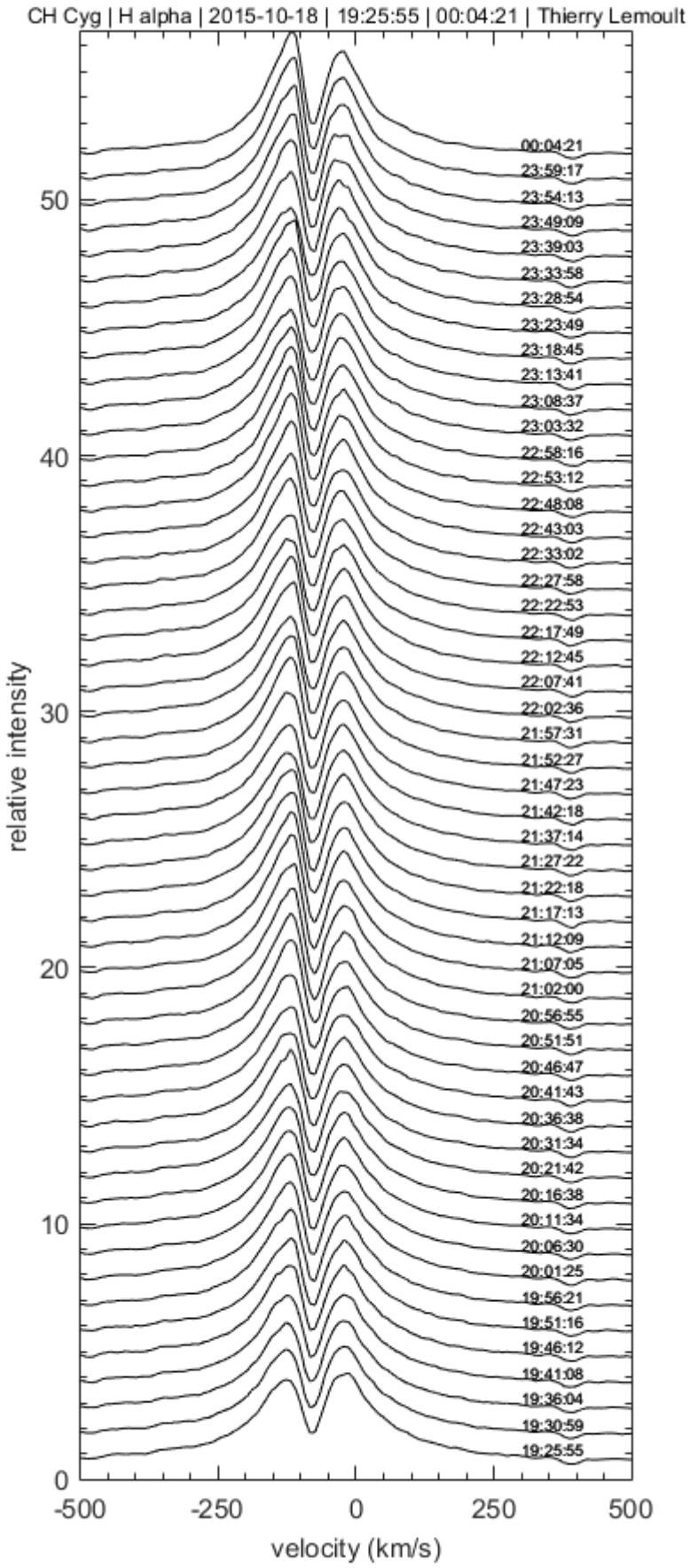
CH Cygni ARAS campaign : see page 16 and previous issues



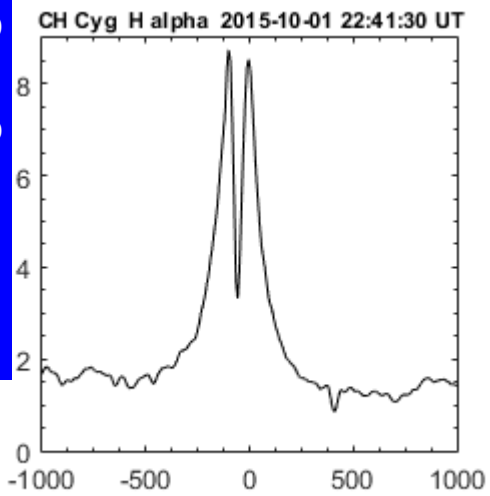
CH Cygni campaign : time series by T. Lemoult

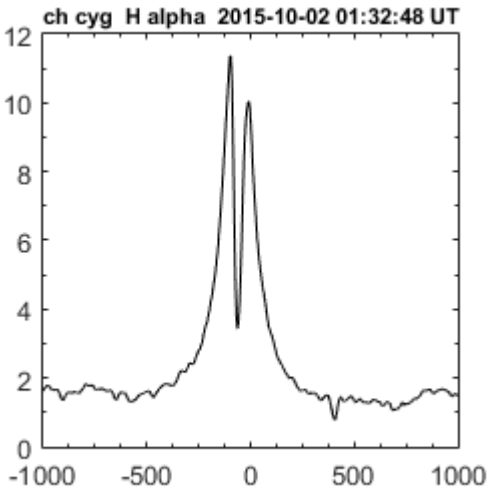
Thierry Lemoult produced several long time-series on 1st 2sd and 18th of October, 2015

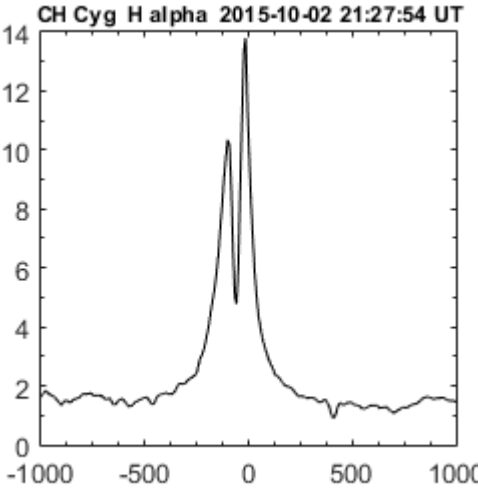


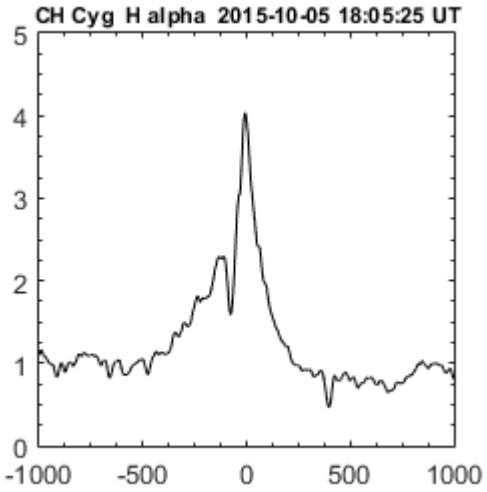


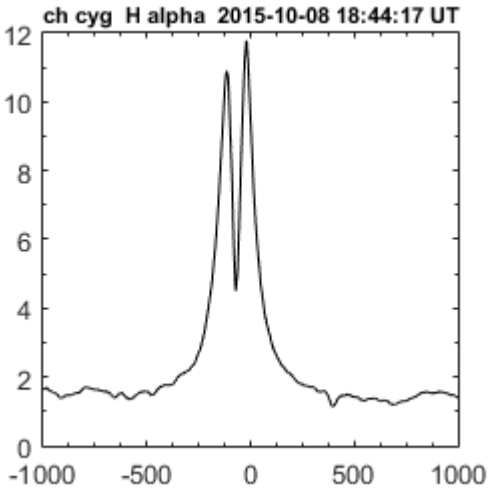
CH Cygni campaign : H alpha profiles during october

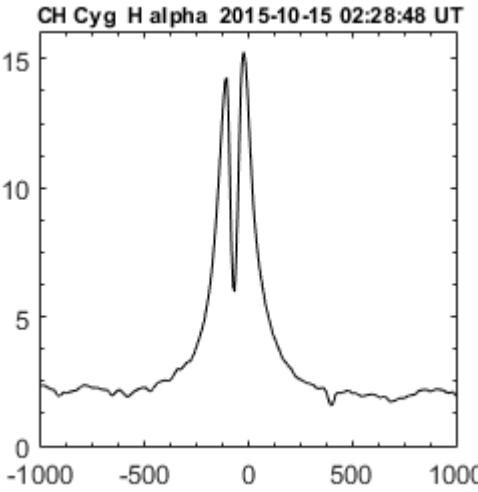


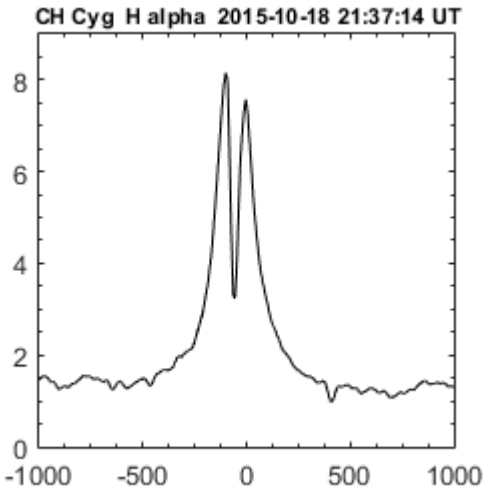


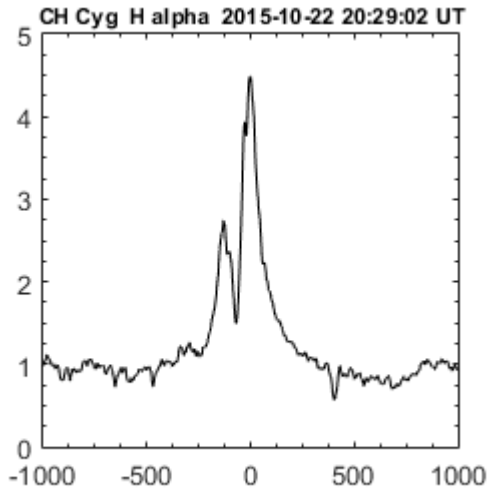


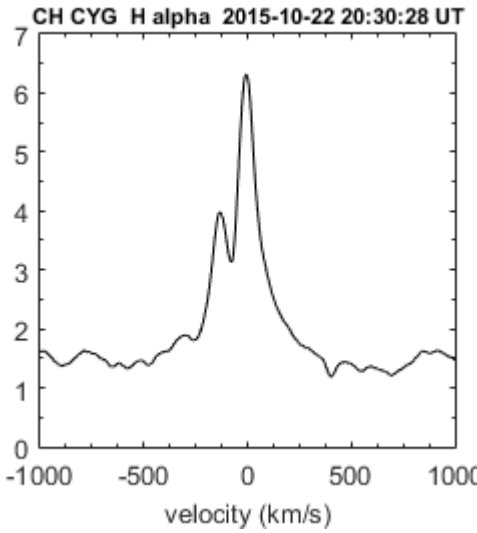


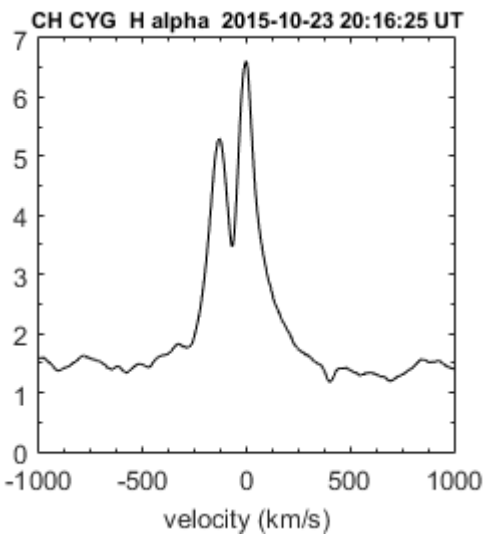


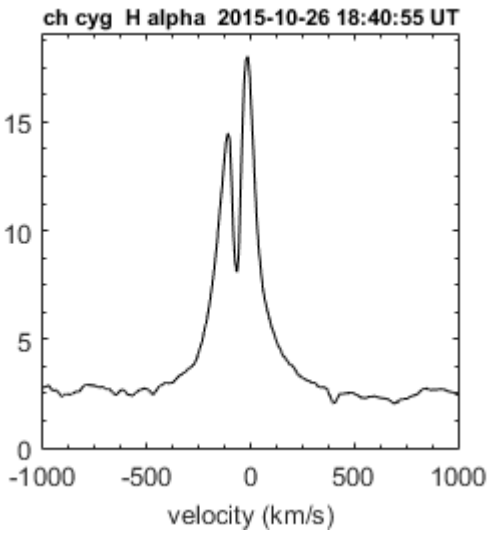












H alpha profiles at R = 6000 to 15000
- Thierry Lemoult
- Joan Guarro Flo
- Peter Somogyi
- Keith Graham
- François Teyssier

#	date	Time UT	Time JD	Obs	Site	Instrument	Res.	λ min	λ max
268	01/10/2015	20:30:00	2457297.376	TLE	CHE-FR	C14eShelATIK460	11000	4355	7365
269	01/10/2015	21:36:00	2457297.421	TLE	CHE-FR	C14eShelATIK460	11000	4355	7365
270	01/10/2015	22:41:00	2457297.466	TLE	CHE-FR	C14eShelATIK460	11000	4355	7365
271	02/10/2015	01:32:00	2457297.582	GKA	MAN-US	lx20012"Lhires24	12000	6483	6652
272	02/10/2015	20:22:00	2457298.37	TLE	CHE-FR	C14eShelATIK460	11000	4355	7365
273	02/10/2015	21:27:00	2457298.416	TLE	CHE-FR	C14eShelATIK460	11000	4355	7365
274	02/10/2015	22:33:00	2457298.461	TLE	CHE-FR	C14eShelATIK460	11000	4355	7365
275	03/10/2015	00:40:00	2457298.53	TLE	CHE-FR	C14eShelATIK460	11000	4355	7365
276	05/10/2015	18:05:00	2457301.263	PSO	TAT-HU	25cmLH2400_35u414ex	13875	6504	6615
277	08/10/2015	18:17:00	2457304.269	FMT	ROU-FR	SC14+eShel	11000	4287	7157
278	08/10/2015	18:44:00	2457304.288	FMT	ROU-FR	SC14+eShel	11000	4400	7100
279	13/10/2015	22:44:00	2457309.455	DBO	WCO-UK	C11+LISA+SXVR-H694	883	3900	7400
280	14/10/2015	01:32:00	2457309.571	GKA	MAN-US	lx20010"AlpyAtik	600	3604	7404
281	15/10/2015	02:28:00	2457310.609	LES	MRO-CA	31cmDK+23um1800lpm+	9000	6000	7102
282	18/10/2015	19:25:00	2457314.331	TLE	CHE-FR	C14eShelATIK460	11000	4355	7365
283	18/10/2015	20:31:00	2457314.376	TLE	CHE-FR	C14eShelATIK460	11000	4355	7365
284	18/10/2015	21:37:00	2457314.422	TLE	CHE-FR	C14eShelATIK460	11000	4355	7365
285	18/10/2015	22:43:00	2457314.468	TLE	CHE-FR	C14eShelATIK460	11000	4355	7365
286	18/10/2015	23:49:00	2457314.5	TLE	CHE-FR	C14eShelATIK460	11000	4355	7365
287	21/10/2015	21:51:00	2457317.416	GJF	SMM-SP	16REMOTATIK460EX	895	3677	7480
288	22/10/2015	20:29:00	2457318.364	PSO	TAT-HU	25cmLH2400_23u414ex	22283	6498	6609
289	22/10/2015	20:30:00	2457318.372	GJF	PIE-SP	NOU16ATIK314L+	5932	6423	6745
290	23/10/2015	20:06:00	2457319.341	PSO	TAT-HU	25cmLH150_23u414exm	550	4314	7232
291	23/10/2015	20:16:00	2457319.362	GJF	PIE-SP	NOU16ATIK314L+	5988	6417	6753
292	26/10/2015	18:40:00	2457322.287	FMT	ROU-FR	SC14+eShel	11000	4209	7157
293	26/10/2015	19:17:00	2457322.307	CHK	OAF-FR	CDK17+ALPY600+314L+	600	4200	7000
294	31/10/2015	00:17:00	2457326.519	LES	MRO-CA	31cmDK+23um1800lpm+	9000	6000	7102
295	31/10/2015	19:17:00	2457327.331	OGA	OTO-FR	RC400Astrosib-Eshe	11000	4184	7314
296	31/10/2015	20:34:00	2457327.385	OGA	OTO-FR	RC400Astrosib-Eshe	11000	4184	7314

CHK	Christian Keider
DBO	David Boyd
FMT	Ftançois Teyssier
GJF	Keith Graham
JPE	Joan Guarro Flo
LES	Tim Lester
OGA	Olivier Garde
PSO	Peter Somogyi
SOL	Umberto Sollecchia
TLE	Thierry Lemoult

Request for observations of the symbiotic star CH Cygni (Dr A. Skopal)

Field of CH Cygni - Christian Buil - 15-03-2012

CH Cygni

Coordinates (2000.0)	
R.A.	19 24 33
Dec.	+54 14 29.1

Current magnitude V = 7.4 to 7.6
(Flickering)

Reference stars

MILES Standart for high resolution spectra

Name	RA (2000)	Dec (20002)	Sp. Type	Mag. V	E_{B-V}
HD 192640	20:14:31.9	+36:48:22.7	A2V	4.96	0.026

Reference for low resolution spectra

Name	RA (2000)	Dec (20002)	Sp. Type	Mag. V	E_{B-V}
HD 183534	19:27:42	+52:19:14	A1V	5.7	0

Observing

High resolution spectra
Eshel
LHIRES III 2400 l/mm (H alpha)
Spectra should be corrected for heliocentric velocity

Low resolution spectra (minimum R = 600)
With an excellent correction of atmospheric/intrumental response for computation of the SED

Send spectra

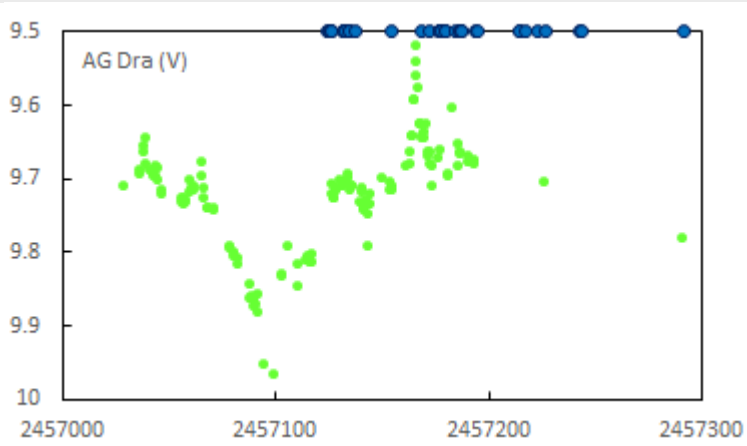
To francoismathieu.teyssier at bbox.fr

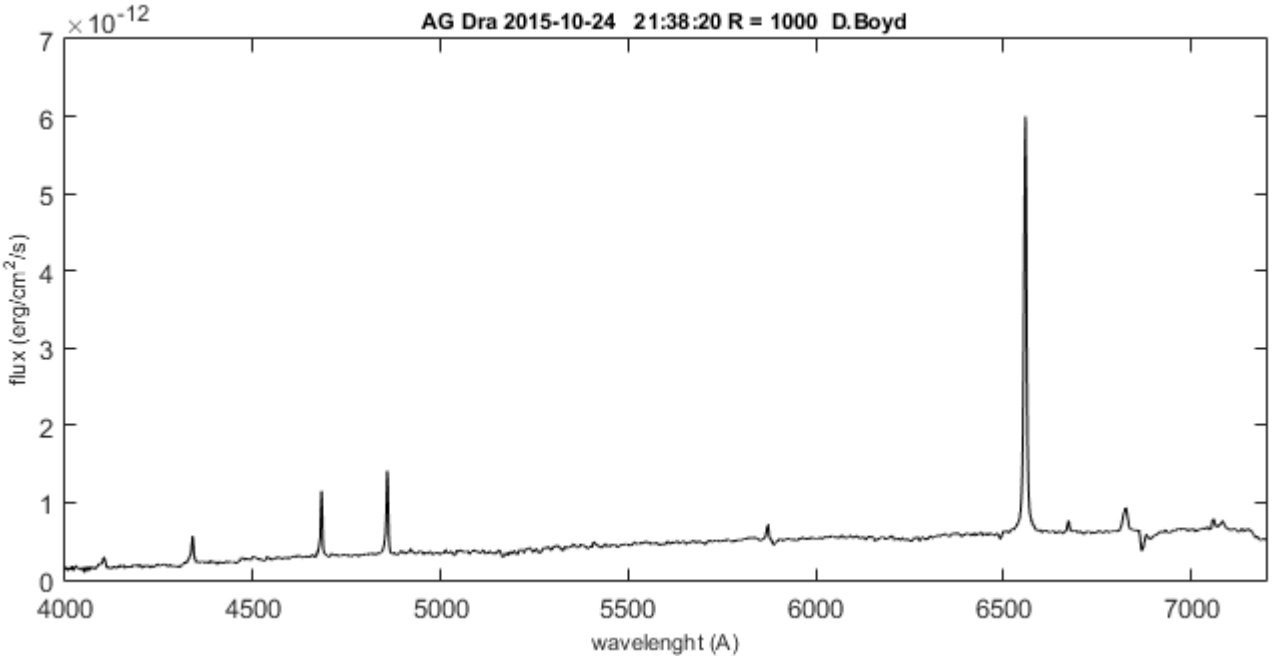
File name : _chcygni_aaaammdd_hhh.fit
And _chcygni_aaaammdd_hhh.zip for eShel and Time series

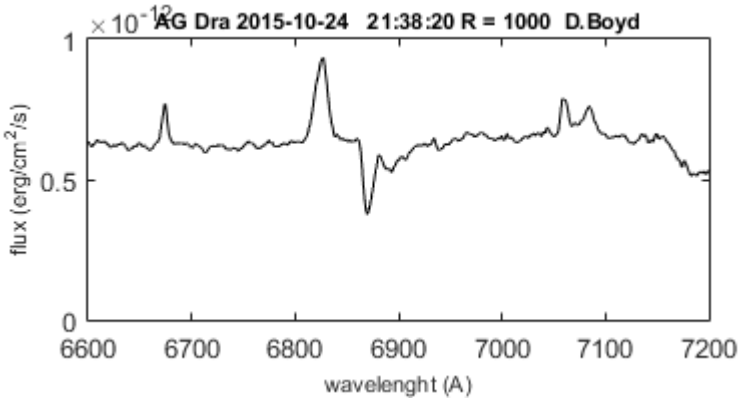
ARAS Data Base for CH Cygni
http://www.astrosurf.com/aras/Aras_DataBase/Symbiotics/CHCyg.htm

AG Dra

Coordinates (2000.0)	
R.A.	16 01 41.0
Dec.	+66 48 10.1
Mag V	9.7





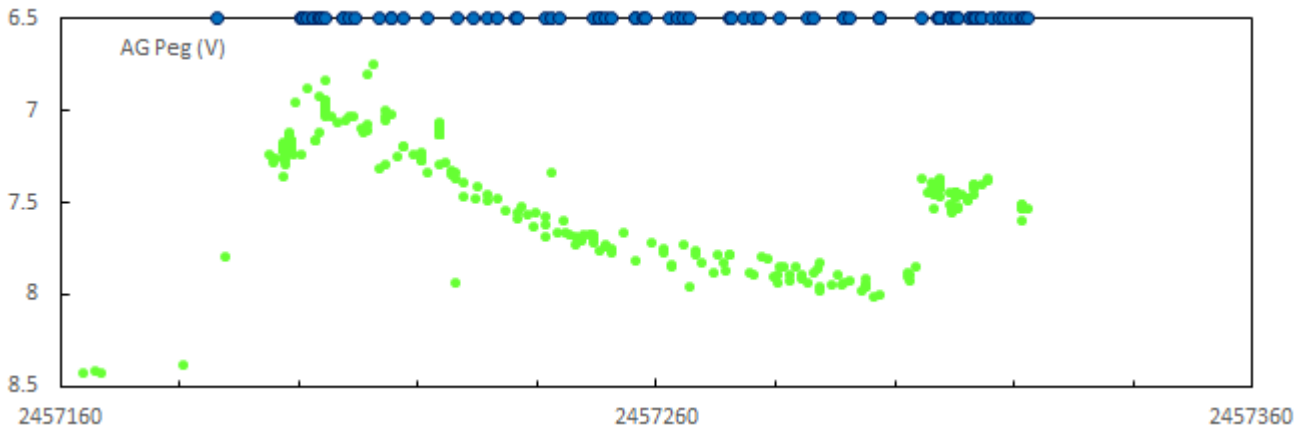


Raman OVI lines

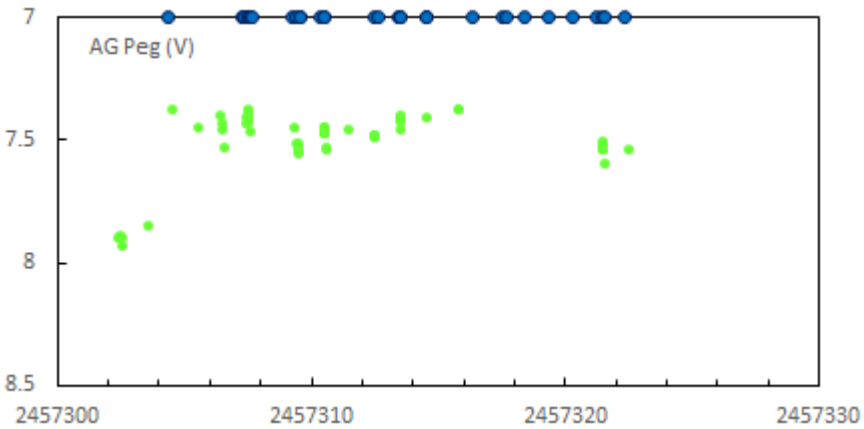
AG Peg in outburst : an historical event

Coordinates (2000.0)	
R.A.	19 23 53.5
Dec.	+29 40 29.2

The symbiotic nova AG Peg undergone in June its first symbiotic ouburst raising at mag V ~ 6.8
After a smooth decline to mag ~ 7.9 AG Peg shows a new, smaller and faster outburst.
F. Teyssier got a spectrum of the symbiotic just during the raise of this second outburst



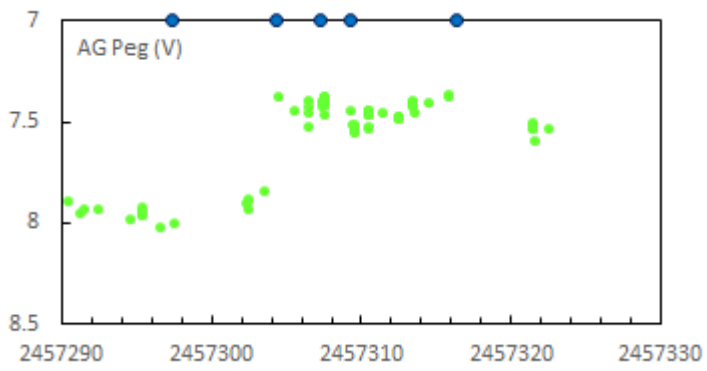
AAVSO V mag (green) and spectra in Aras Data Base (Blue dots)

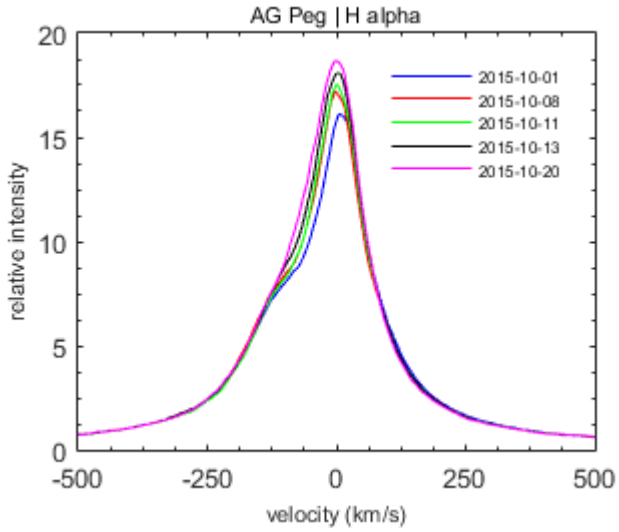


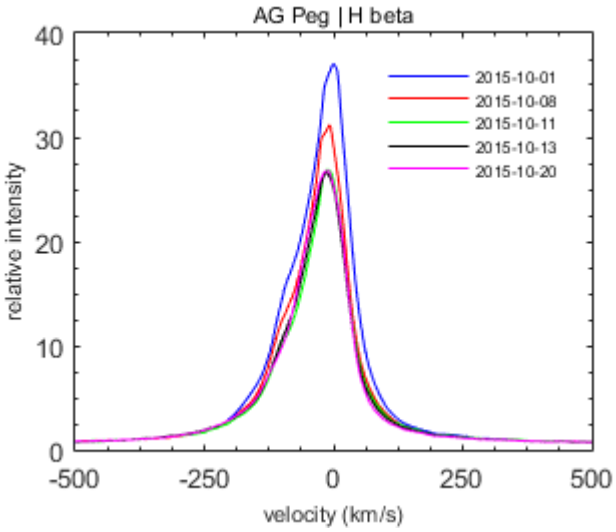
ARAS coverage during the second outburst

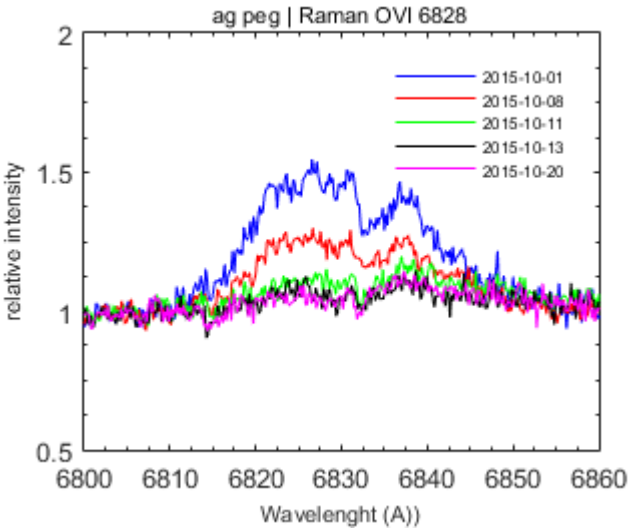
AG Peg :

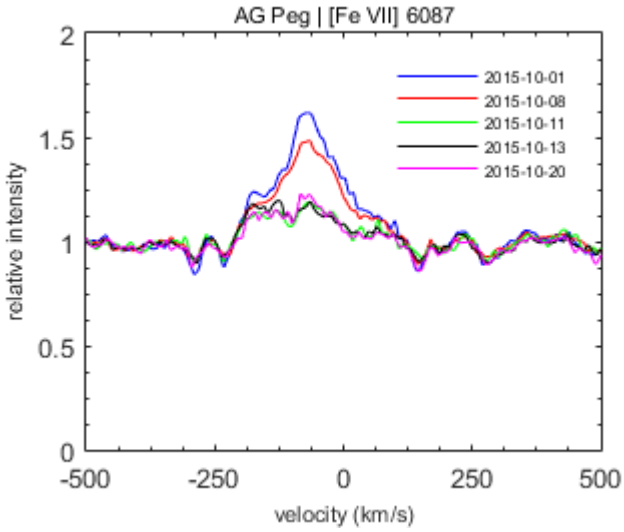
The second outburst with an eshel at R = 11000 F. Teyssier
The red spectrum is obtained during the raising (2015-10-08).
Note the decline of the high ionized species Raman OVI, He II and [Fe VII]
From 2015-10-11, the intensities of theses lines are almost at minimum value

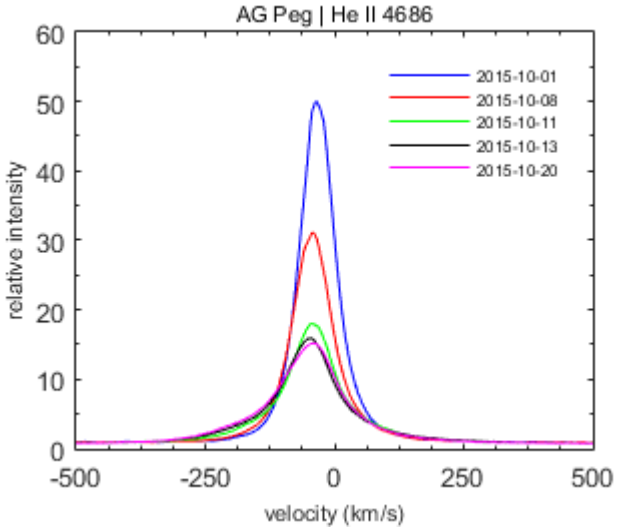


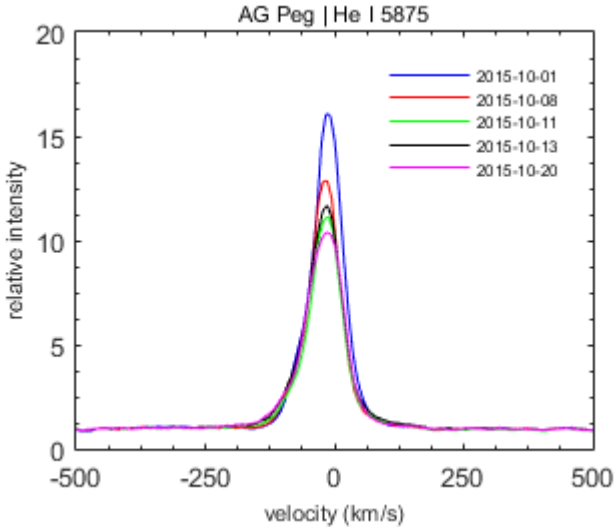


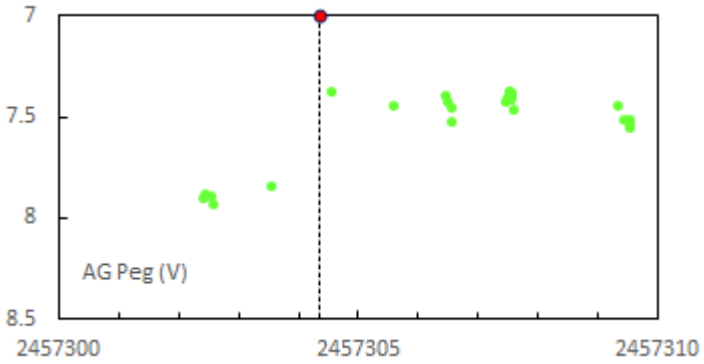


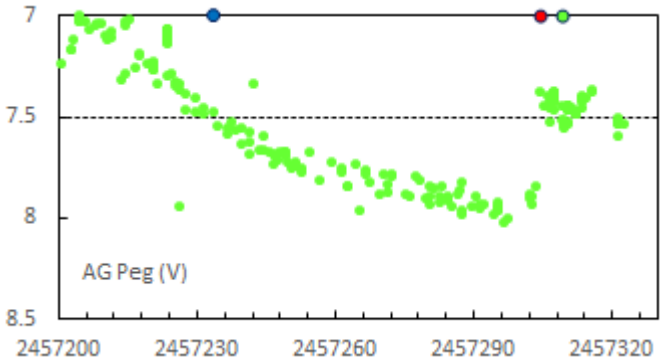








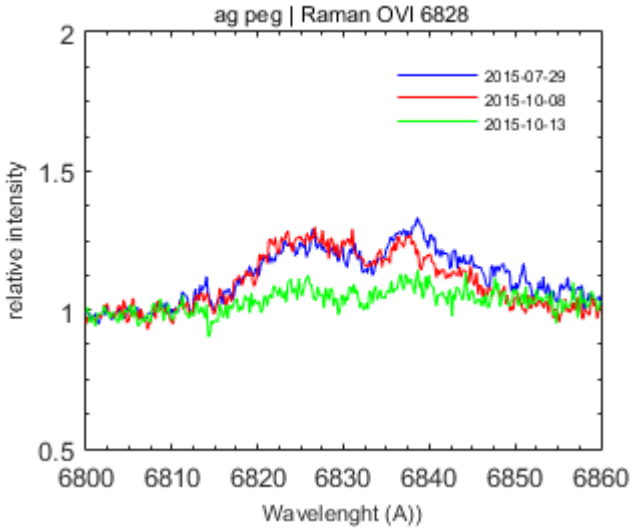


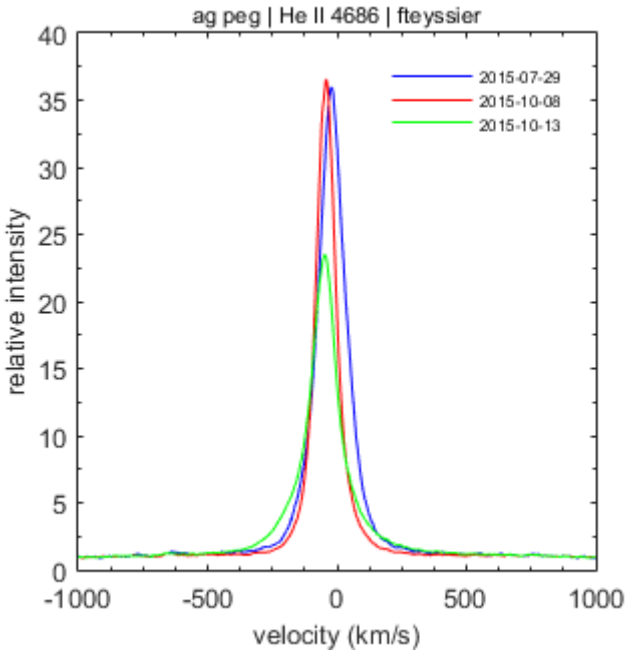


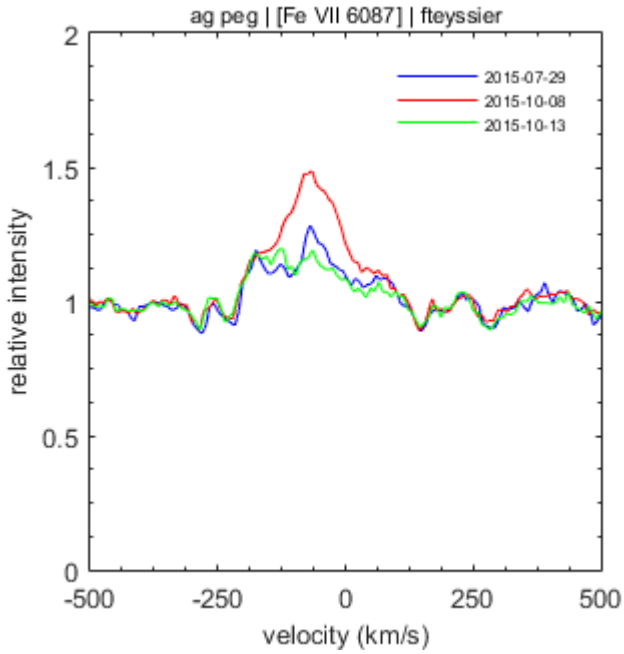
The spectrum obtained on 2015-10-08 (red dot), just at the end of the second visual outburst

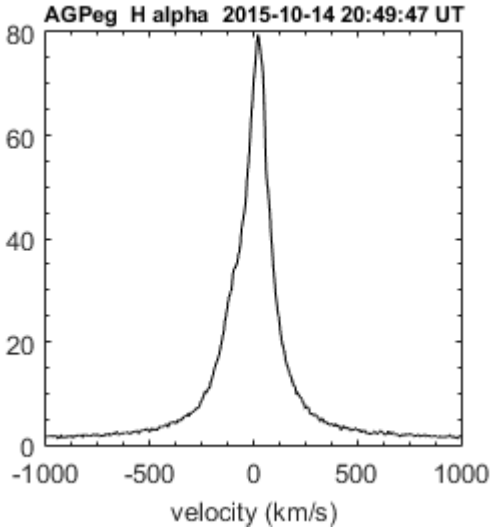
We compare the profiles and intensities of the high ionised lines with a spectrum obtained at the some V luminosity during the decline of the first outburst (blue dot, 29-07-2015) and a spectrum obtained 5 days after the maximum of the second outburst (green dot).

Note the difference of the evolution of He II /Raman OVI and [Fe VII].



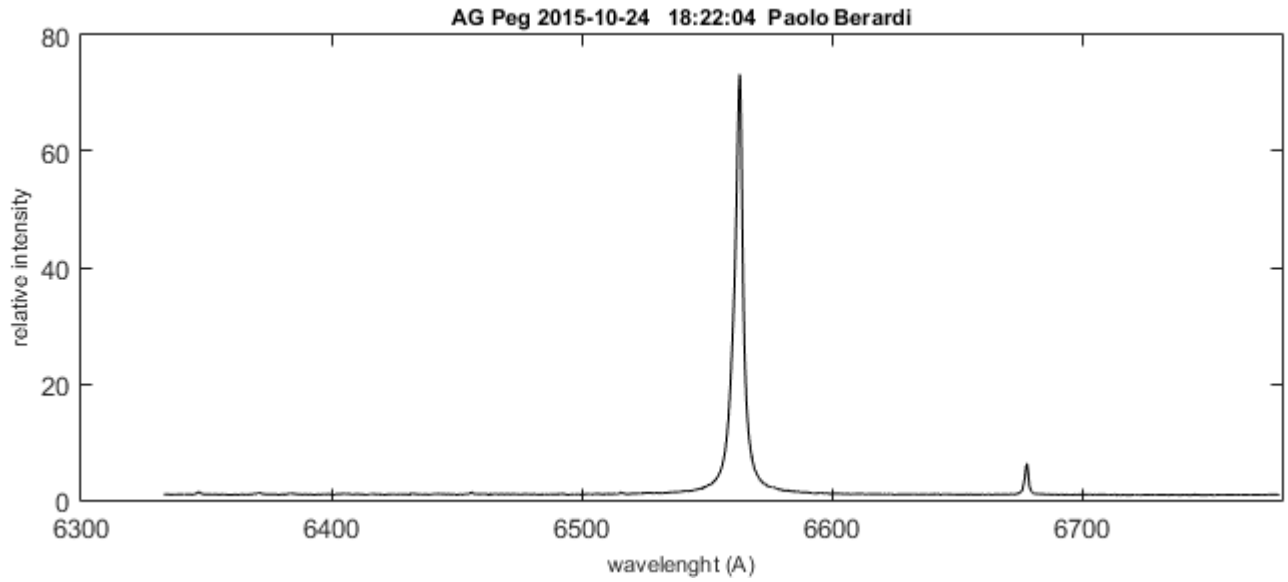


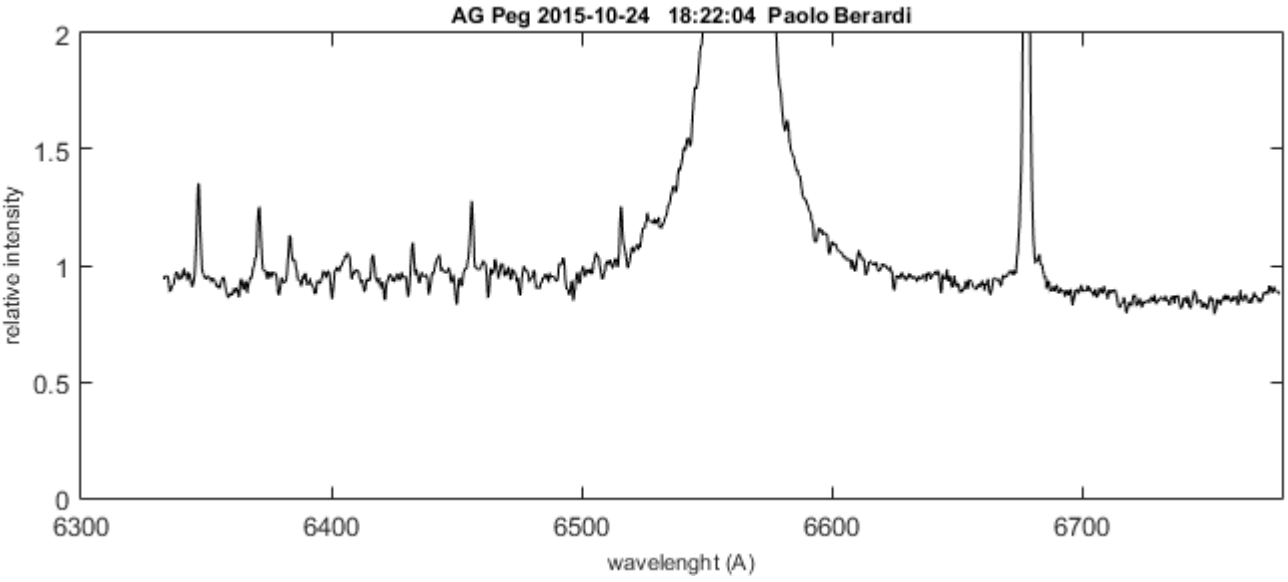


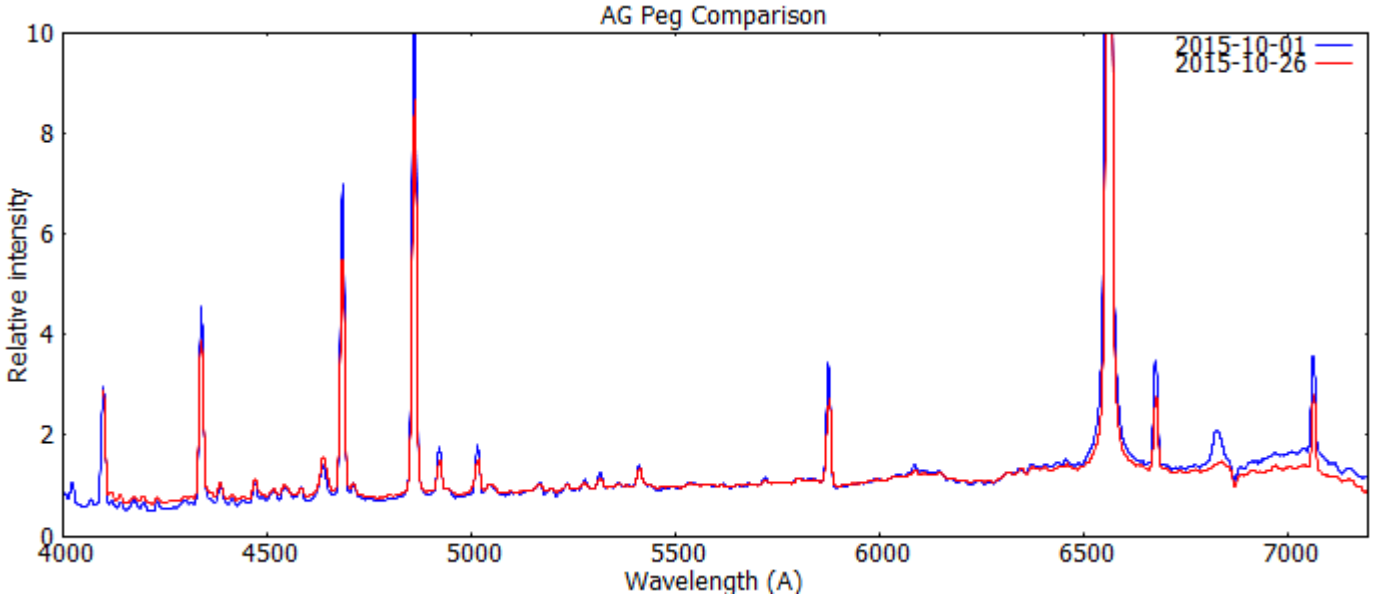


Andew J. Wilson
Lhires III - 2400 l/mm

Paolo Berardi
Lhires III - 1200 l/mm R ~6000

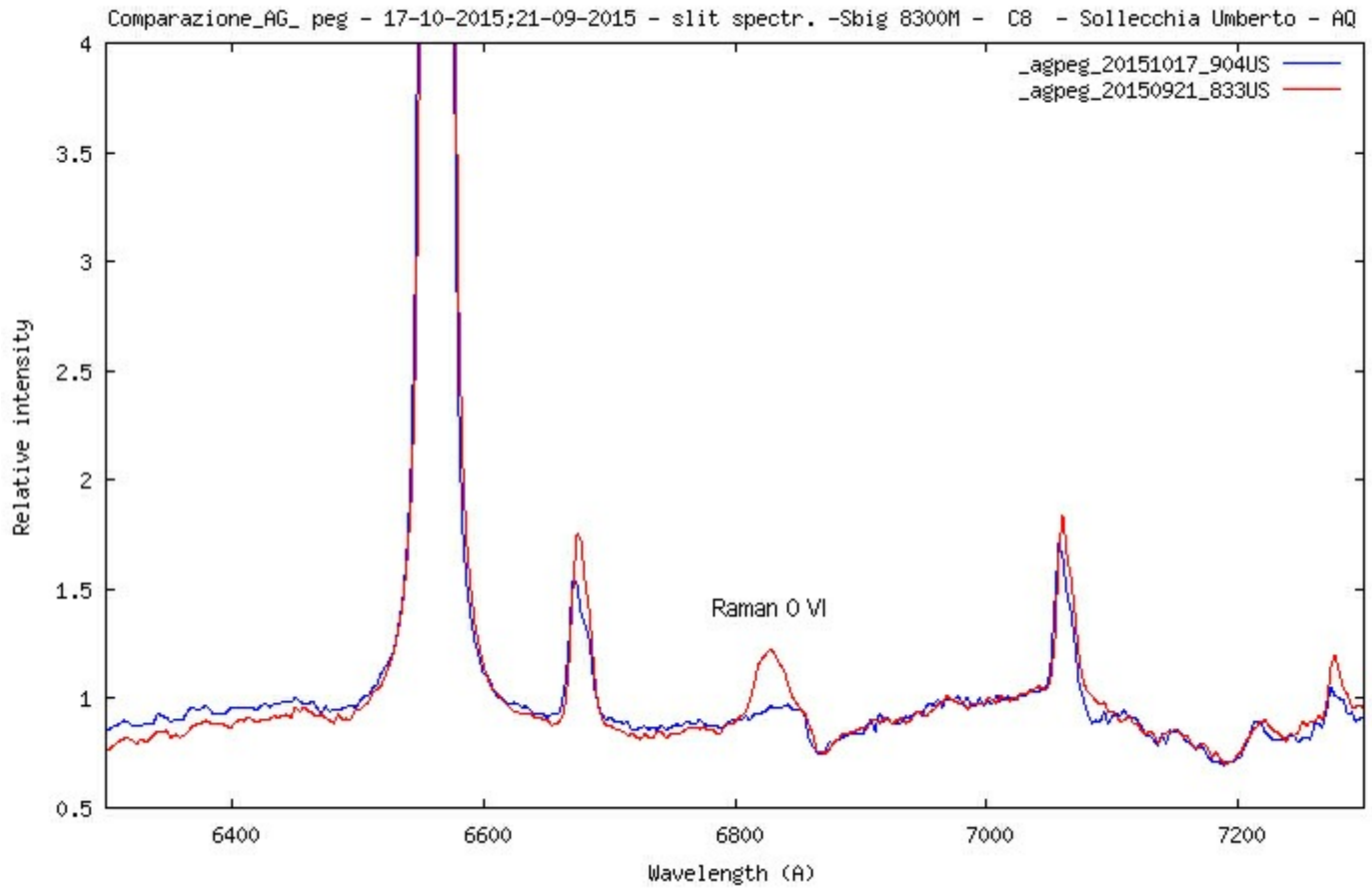






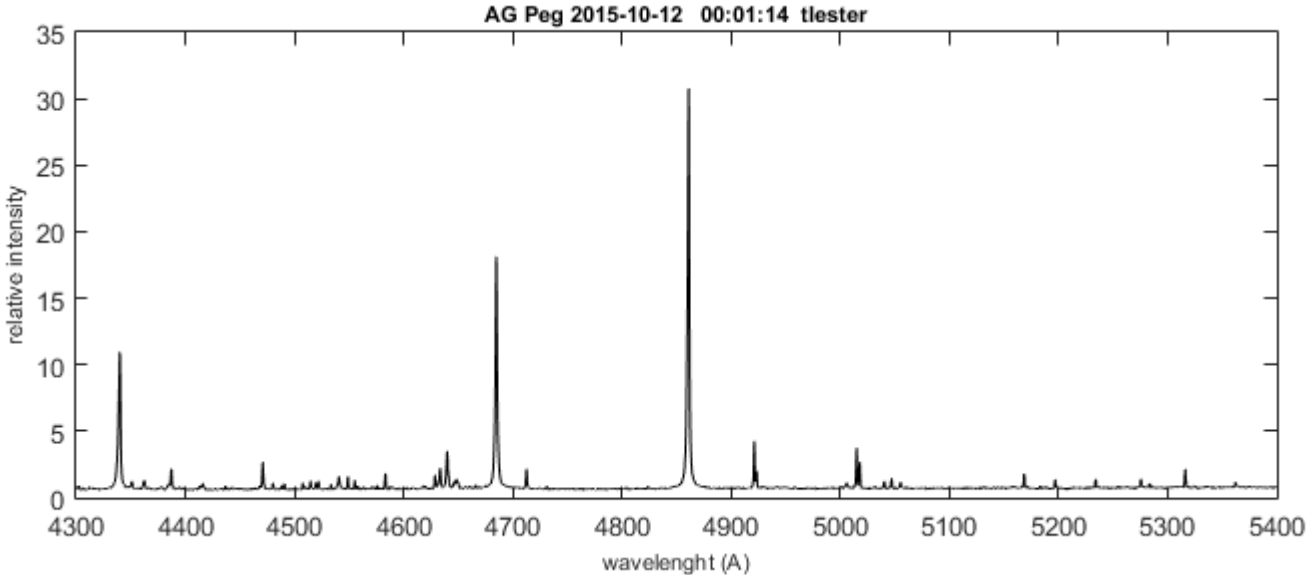
Christian Keider Alpy R = 600
AG Peg before (blue) and during the second outburst (red)
The weakening of Raman OVI is obvious at that resolution
The change in continuum near 7000 A is uncertain

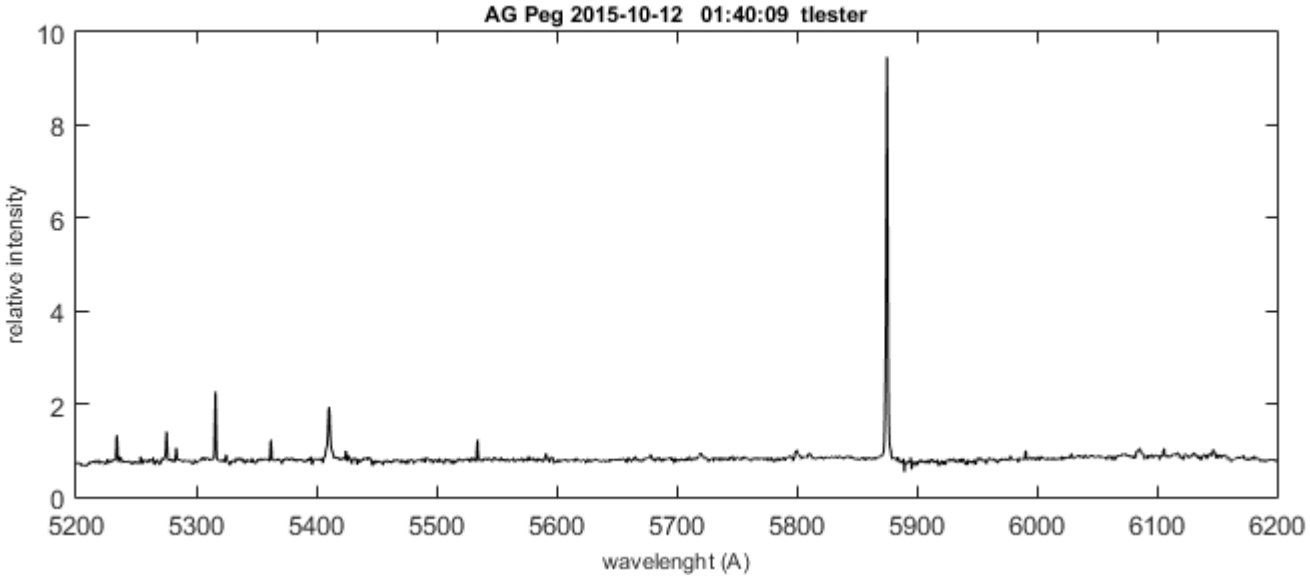
The same comparison by Umberto Sollecchia with a homme built spectrograph R = 600

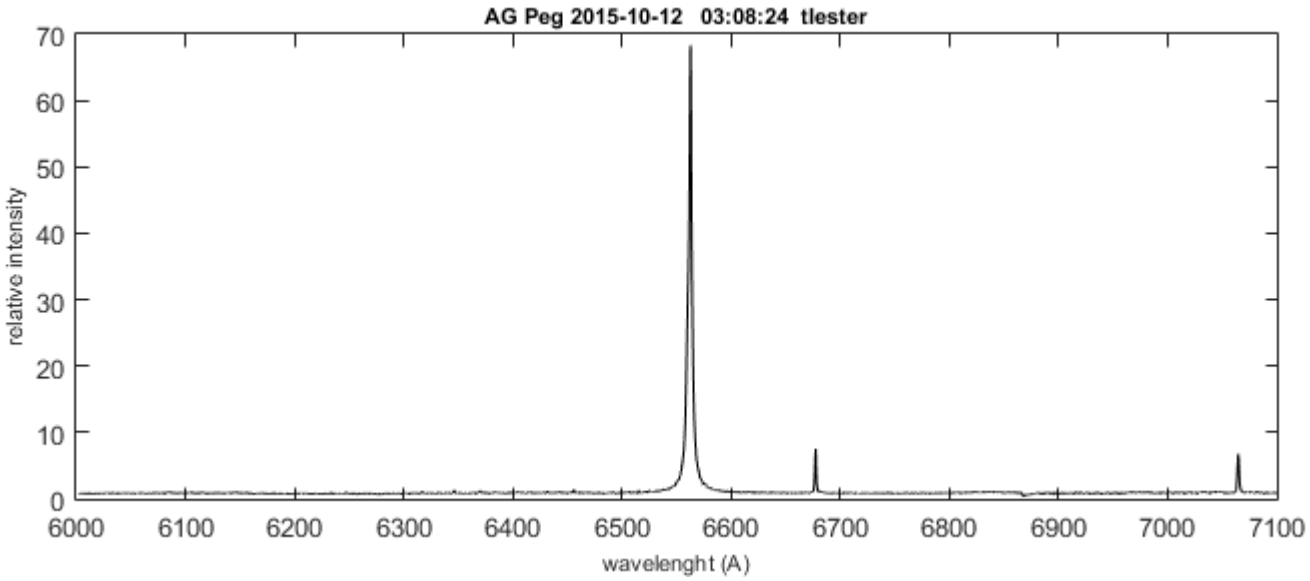


AG Peg in october

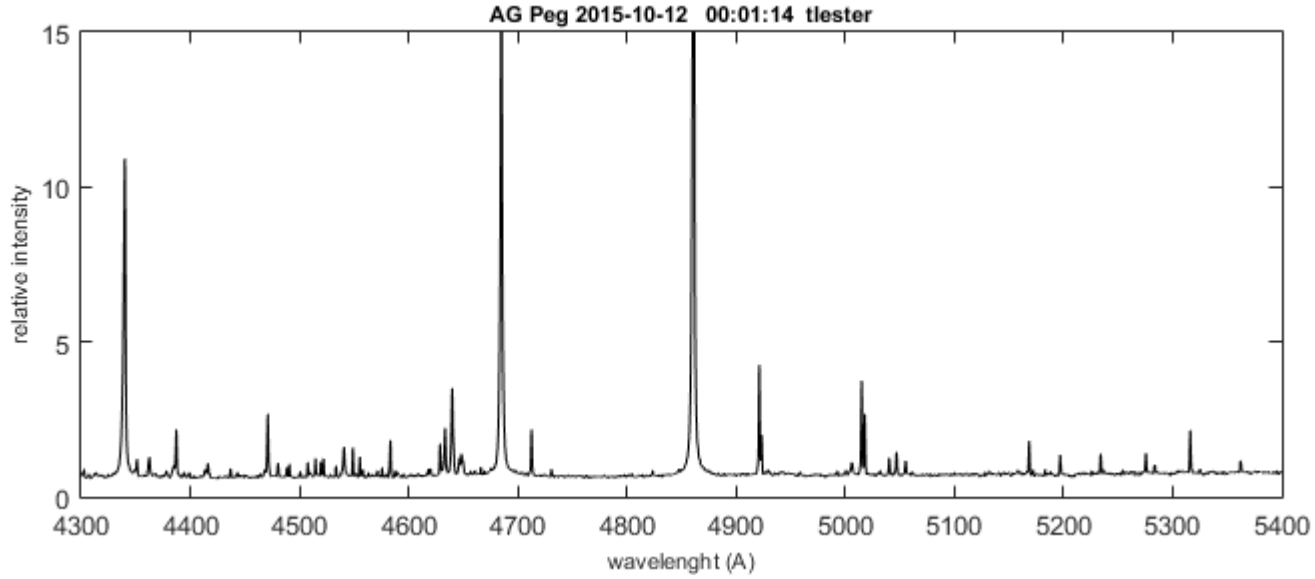
Tim Lester with a home built spectrograph at R = 9000
The visible spectrum in three spectra obtained during the same night

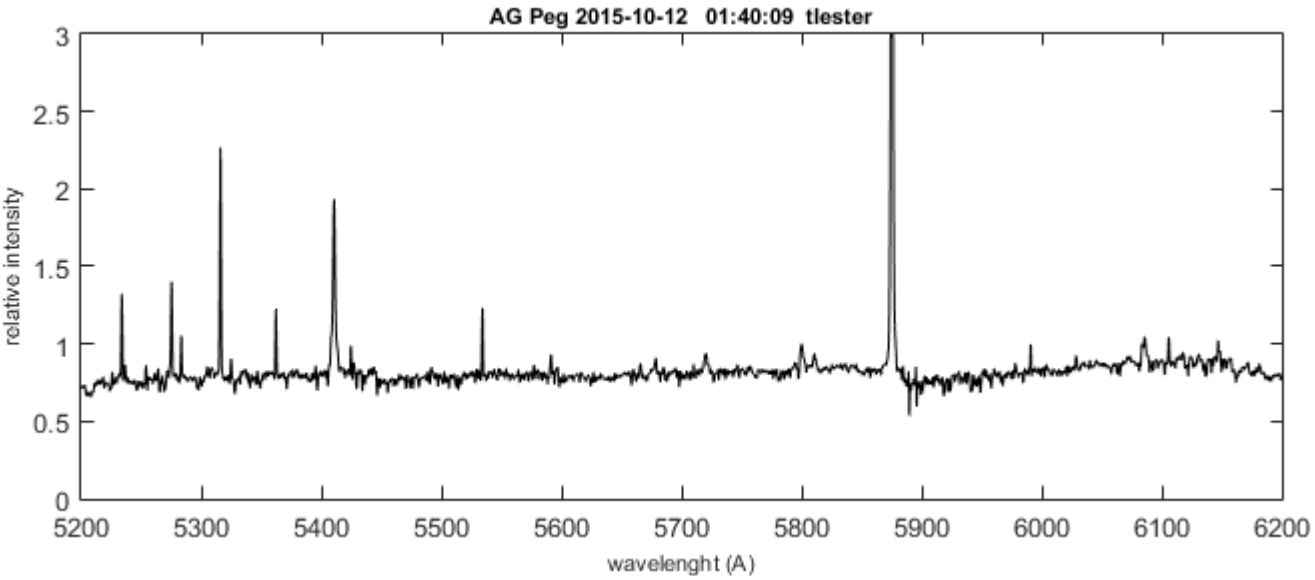


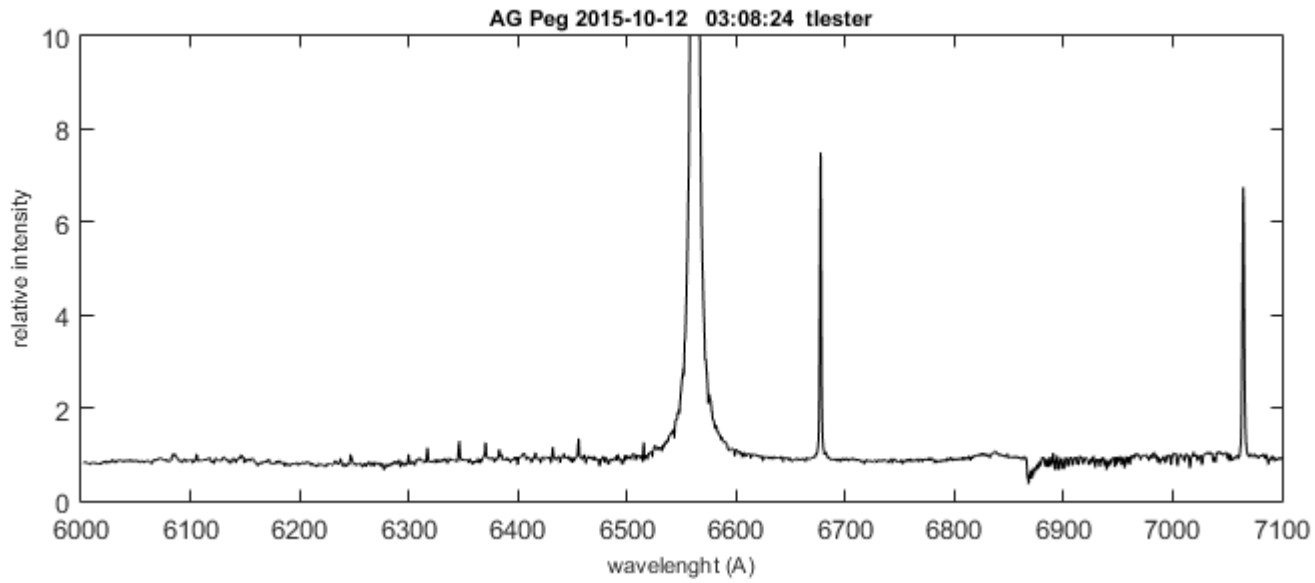




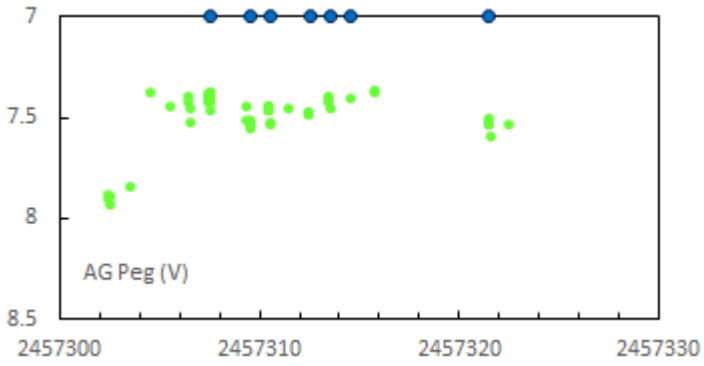
Idem with magnified intensity scale for faint lines



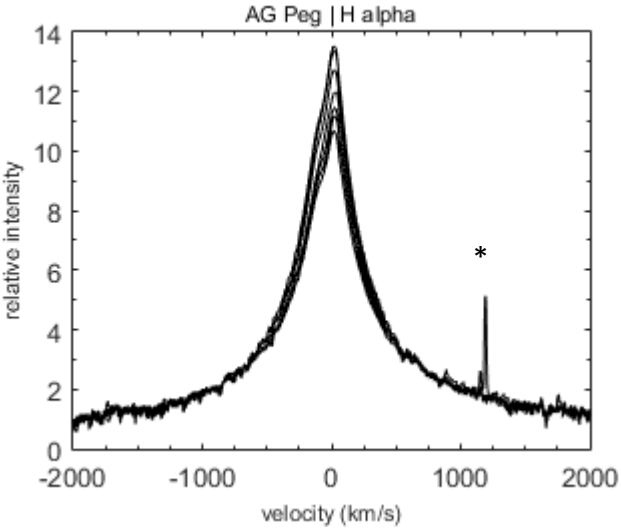


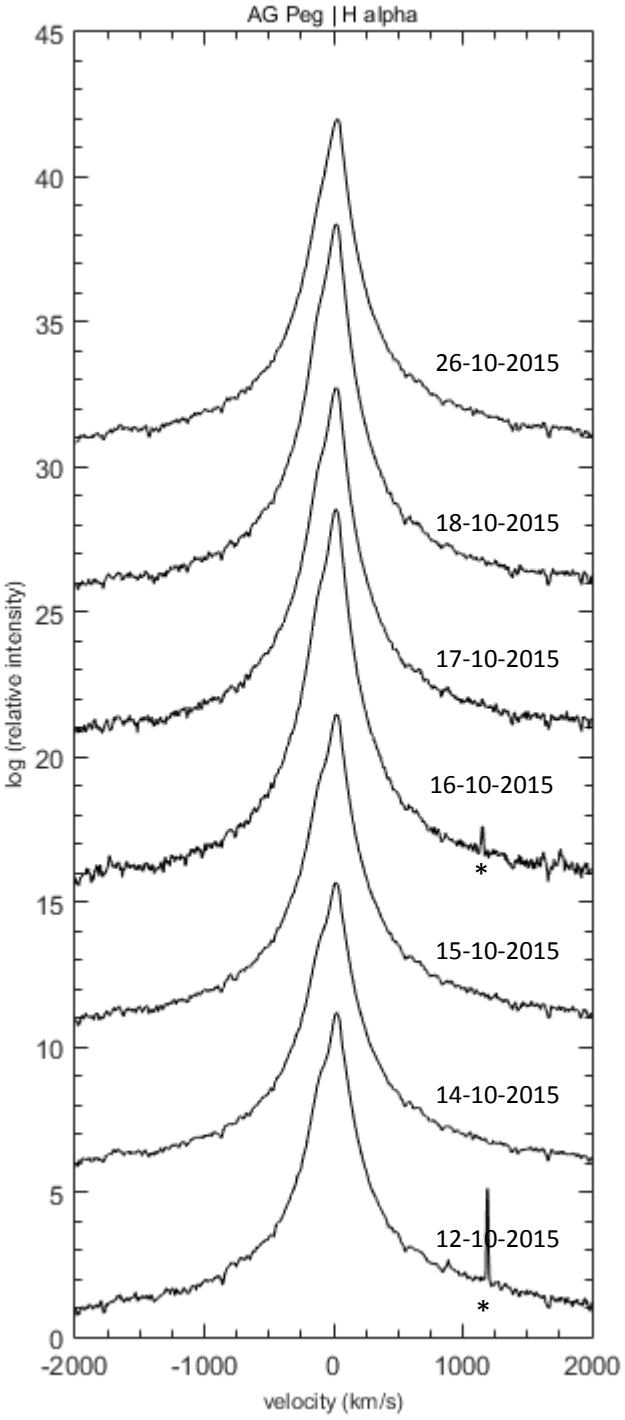


AG Peg in october



H alpha profile during October outburst
at R = 15000 by Keith Graham
(Lhires III 2400 l/mm)
Log of Relative Intensity
* = cosme





#	date	Time UT	Time JD	Obs	Site	Instrument	Res.	λ min	λ max
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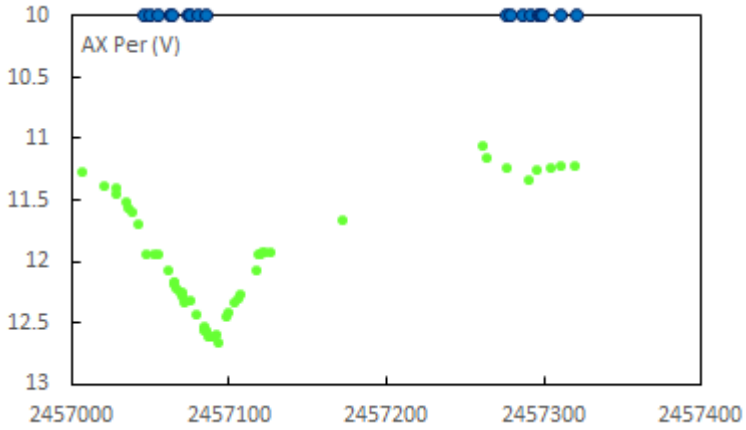
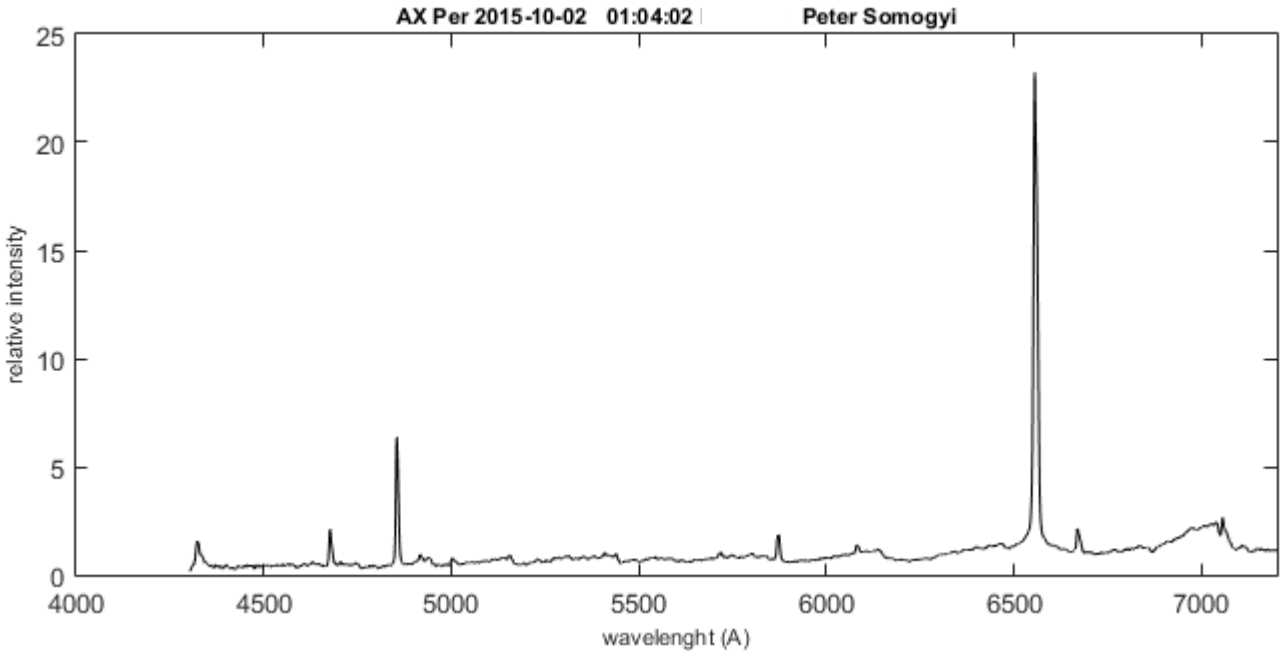
95	01/10/2015	19:48:00	2457297.327	CHK	OAF-FR	CDK17+ALPY600+ATIK	600	2960	7858
96	01/10/2015	23:06:00	2457297.467	PSO	TAT-HU	25cmLH150_15u414exm	524	4300	7226
97	08/10/2015	20:23:00	2457304.355	FMT	ROU-FR	SC14+eShel	11000	4400	7100
98	11/10/2015	18:41:00	2457307.284	FMT	ROU-FR	SC14+eShel	11000	4209	7157
99	11/10/2015	21:12:00	2457307.391	SOL	AQL-IT	Slit_specC8ST-830	500	3800	7300
100	11/10/2015	21:12:00	2457307.391	SOL	LAquila	Slit_specC8ST-830	500	3730	7360
101	12/10/2015	00:01:00	2457307.518	LES	MRO-CA	31cmDK+23um1800lpm+	6500	4267	5421
102	12/10/2015	00:13:00	2457307.53	GKA	MAN-US	lx20012"Lhires24	15000	6483	6643
103	12/10/2015	00:47:00	2457307.544	GKA	MAN-US	lx20010"AlpyAtik	600	3798	7331
104	12/10/2015	01:40:00	2457307.584	LES	MRO-CA	31cmDK+23um1800lpm+	7600	5137	6270
105	12/10/2015	03:08:00	2457307.638	LES	MRO-CA	31cmDK+23um1800lpm+	9000	6002	7102
106	13/10/2015	18:38:00	2457309.284	FMT	ROU-FR	SC14+eShel	11000	4220	7150
107	13/10/2015	22:20:00	2457309.434	DBO	WCO-UK	C11+LISA+SXVR-H694	838	3900	7400
108	14/10/2015	00:34:00	2457309.533	GKA	MAN-US	lx20010"AlpyAtik	600	3603	7404
109	14/10/2015	00:40:00	2457309.546	GKA	MAN-US	lx20012"Lhires24	15000	6483	6643
110	14/10/2015	20:49:00	2457310.37	AJW	YAT-UK	GSO_RC250LHIRES3_2	19796	6496	6653
111	15/10/2015	00:02:00	2457310.519	GKA	MAN-US	lx20012"Lhires24	15000	6483	6643
112	15/10/2015	00:21:00	2457310.516	GKA	MAN-US	lx20010"AlpyAtik	600	3742	7362
113	16/10/2015	23:45:00	2457312.507	GKA	MAN-US	lx20012"Lhires24	15000	6483	6643
114	17/10/2015	02:25:00	2457312.612	GKA	MAN-US	lx20010"AlpyAtik	600	3713	7388
115	17/10/2015	20:57:00	2457313.389	BER	BVO-IT	LHIRES3600C9SXVR	3000	6346	7361
116	17/10/2015	23:56:00	2457313.508	GKA	MAN-US	lx20012"Lhires24	15000	6483	6643
117	18/10/2015	00:12:00	2457313.519	GKA	MAN-US	lx20010"AlpyAtik	600	3603	7404
118	18/10/2015	23:46:00	2457314.505	GKA	MAN-US	lx20012"Lhires24	15000	6483	6643
119	19/10/2015	00:10:00	2457314.508	GKA	MAN-US	lx20010"AlpyAtik	600	3721	7320
120	20/10/2015	19:55:00	2457316.334	FMT	ROU-FR	SC14+eShel	11000	4209	7157
121	21/10/2015	23:48:00	2457317.5	GKA	MAN-US	lx20010"AlpyAtik	600	3742	7374
122	22/10/2015	03:41:00	2457317.655	JPE	DHO-US	CDK24(0.61m)LISA	830	3810	7158
123	22/10/2015	21:43:00	2457318.411	PSO	TAT-HU	25cmLH2400_23u414ex	19551	6498	6609
124	23/10/2015	20:27:00	2457319.355	PSO	TAT-HU	25cmLH150_23u414exm	540	4318	7235
125	24/10/2015	18:22:00	2457320.273	BER	BVO-IT	LHIRES31200C9SXV	6000	6333	6780
126	25/10/2015	17:55:00	2457321.255	FMT	ROU-FR	SC14+eShel	11000	4209	7157
127	26/10/2015	00:04:00	2457321.504	GKA	DHO-US	lx20010"AlpyAtik	600	3683	7386
128	26/10/2015	00:34:00	2457321.542	GKA	DHO-US	lx20012"Lhires24	15000	6483	6642
129	26/10/2015	20:19:00	2457322.347	CHK	OAF-FR	CDK17+ALPY600+314L+	600	4100	7500
130	31/10/2015	01:41:00	2457326.575	LES	MRO-CA	31cmDK+23um1800lpm+	9000	6000	7102

AJW	Andrew J Wilson
BER	Paolo Berardi
CHK	Christian Keider
DBO	David Boyd
FMT	Ftançois Teyssier
GKA	Keith Graham
JPE	Jim Edlin
LES	Tim Lester
PSO	Peter Somogyi
SOL	Umberto Sollecchia

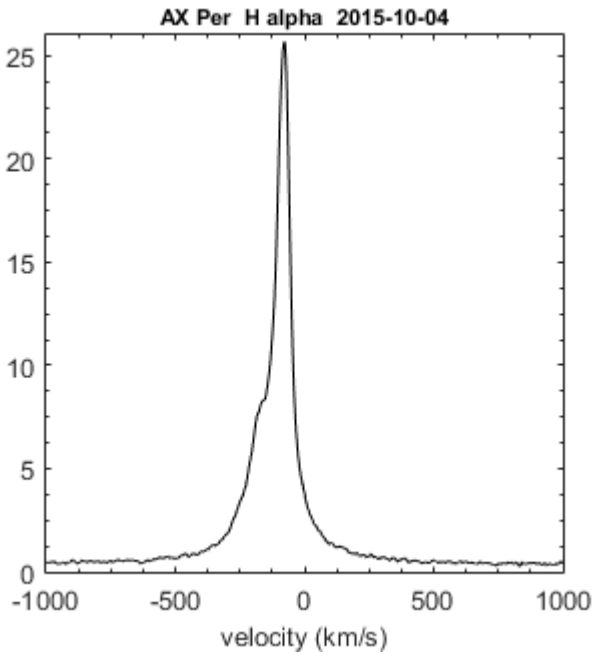
AX Per

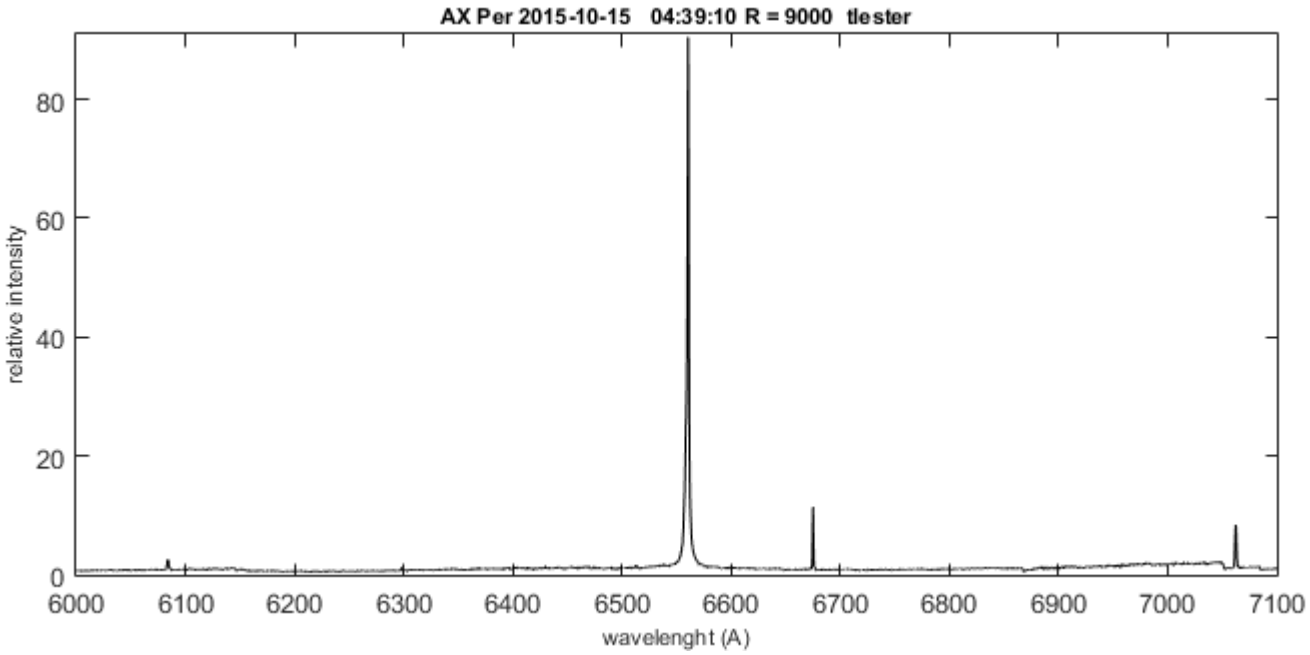
Coordinates (2000.0)	
R.A.	01 36 22.701
Dec.	+54 15 02.4
Mag V	11.2

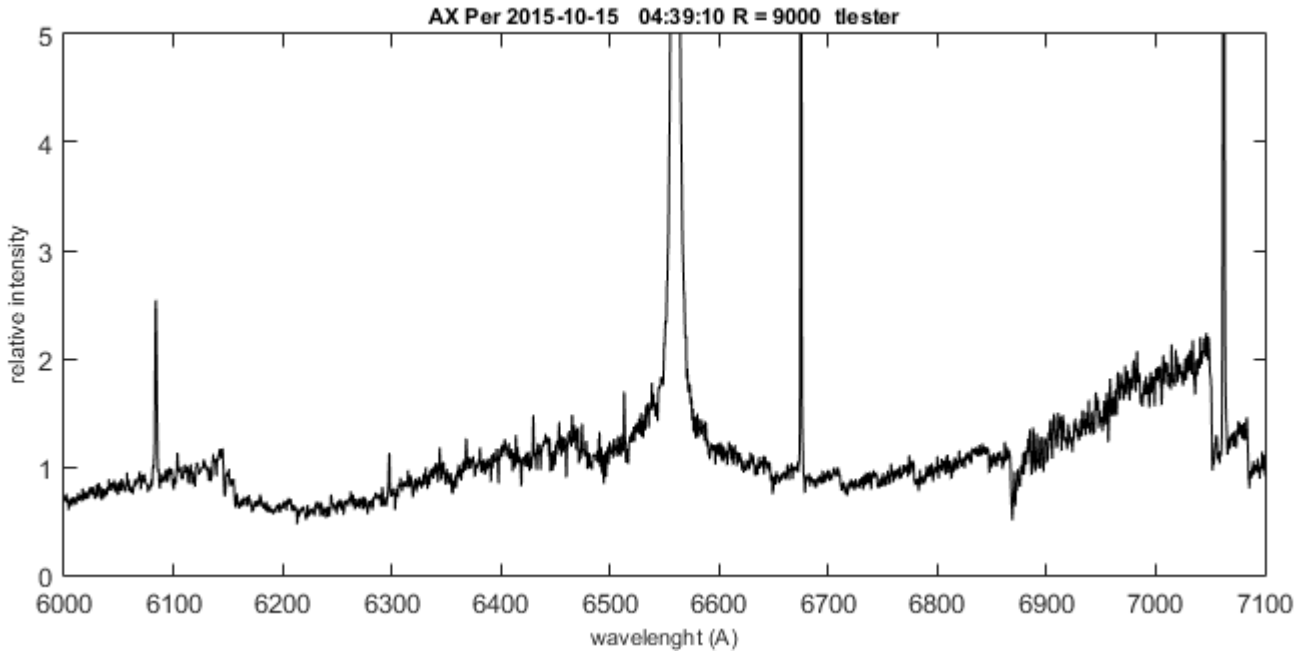




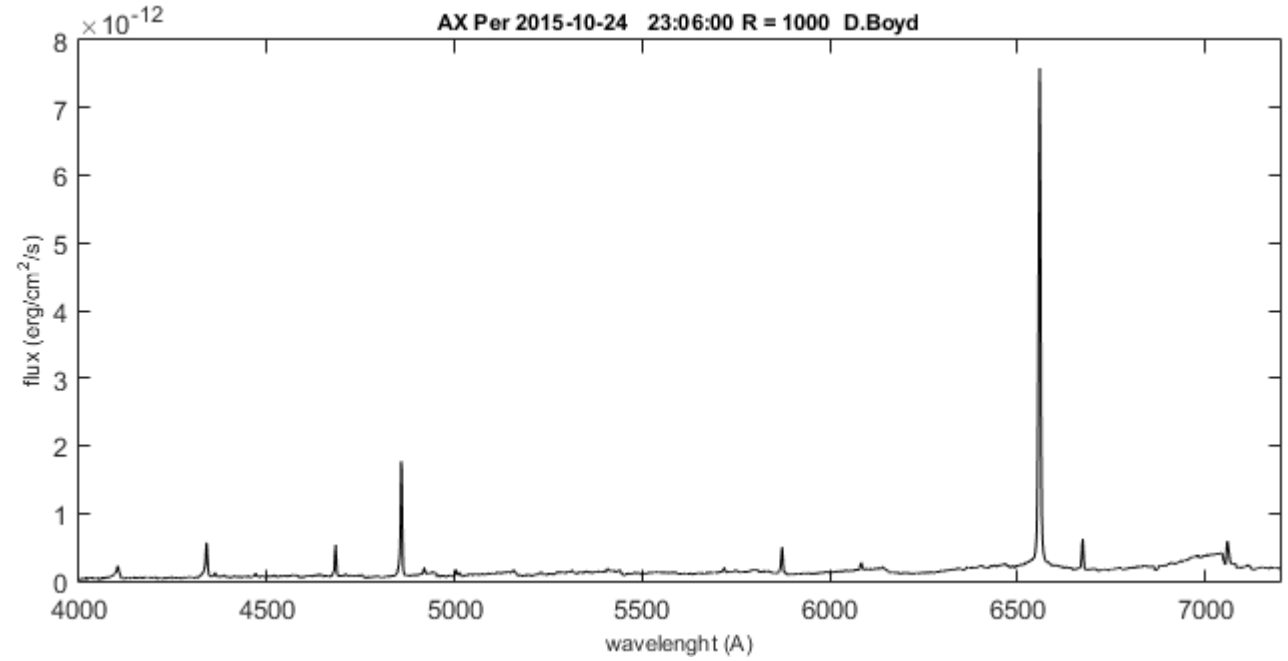
AX Per by Peter Somogyi with a Lhiress III
At R = 700 with 150 l/mm grating (2015-10-02)
At R = 14000 with 2400 l/mm (2015-10-04)

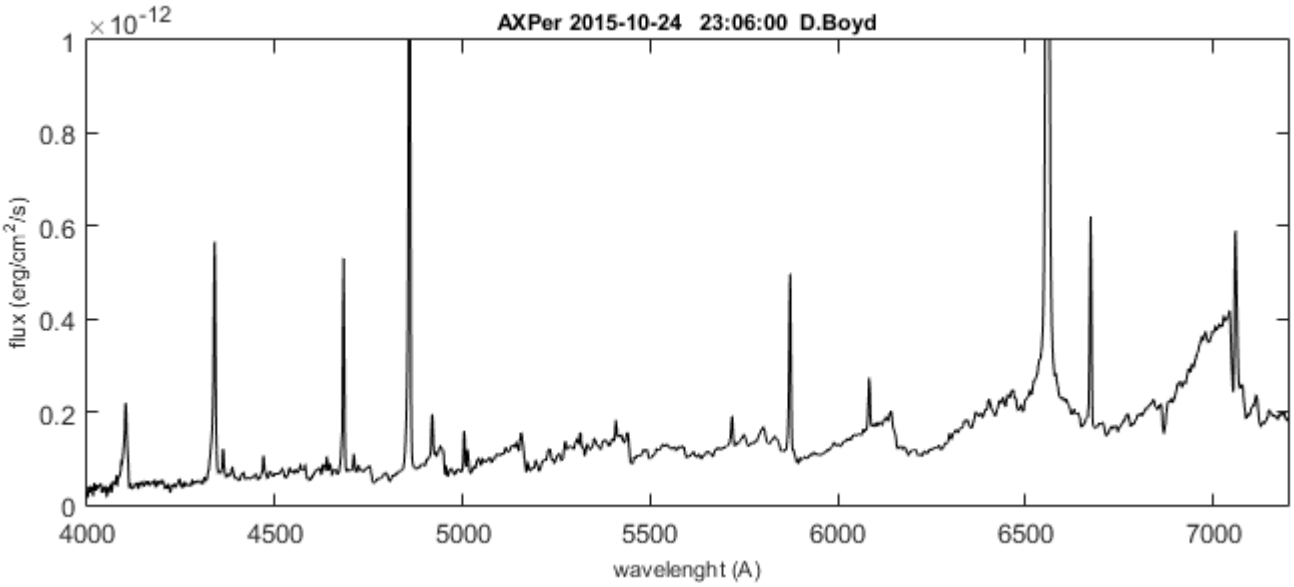



AX Per 2015-10-15 04:39:10 R = 9000 tlester
relative intensity
wavelenght (A)
0
20
40
60
80
6000
6100
6200
6300
6400
6500
6600
6700
6800
6900
7000
7100


AX Per 2015-10-15 04:39:10 R = 9000 tlester
relative intensity
wavelenght (A)
0
1
2
3
4
5
6000
6100
6200
6300
6400
6500
6600
6700
6800
6900
7000
7100

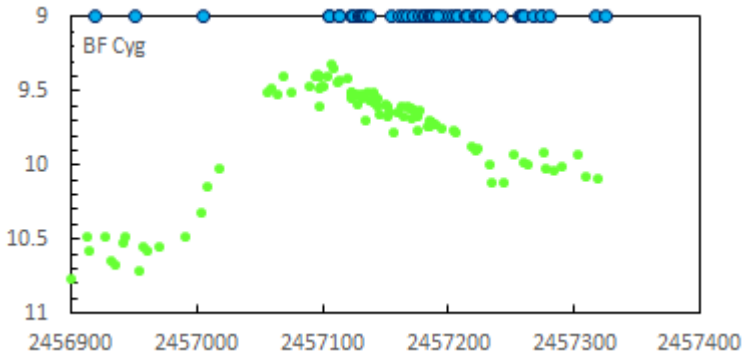
Flux calibrated spectrum
By David Boyd LISA R = 1000



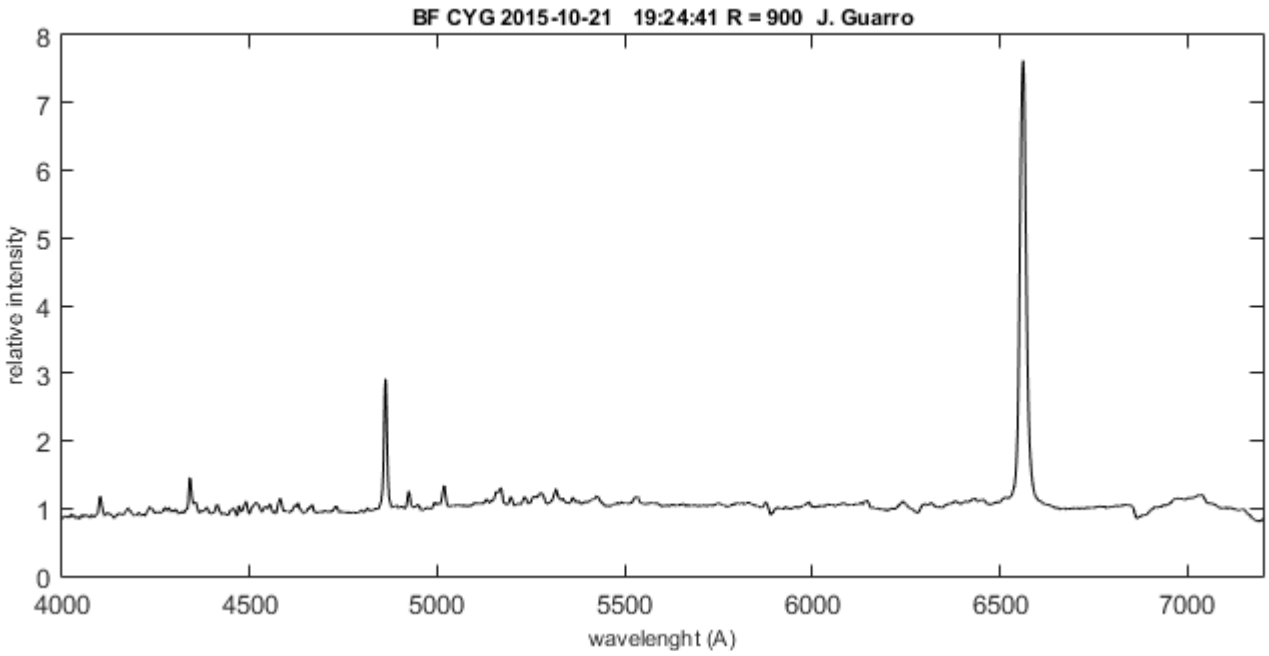


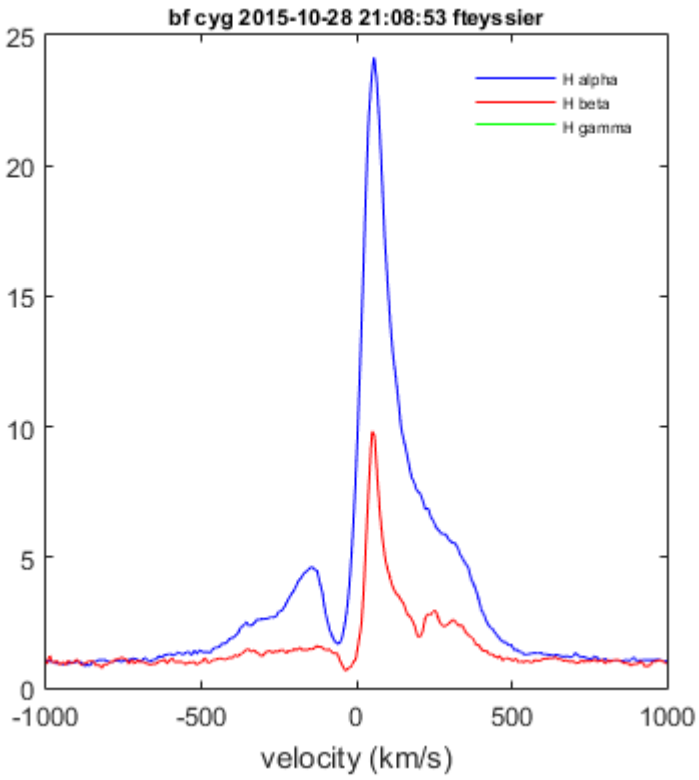
BF Cygni

Coordinates (2000.0)	
R.A.	19 23 53.5
Dec.	+29 40 29.2



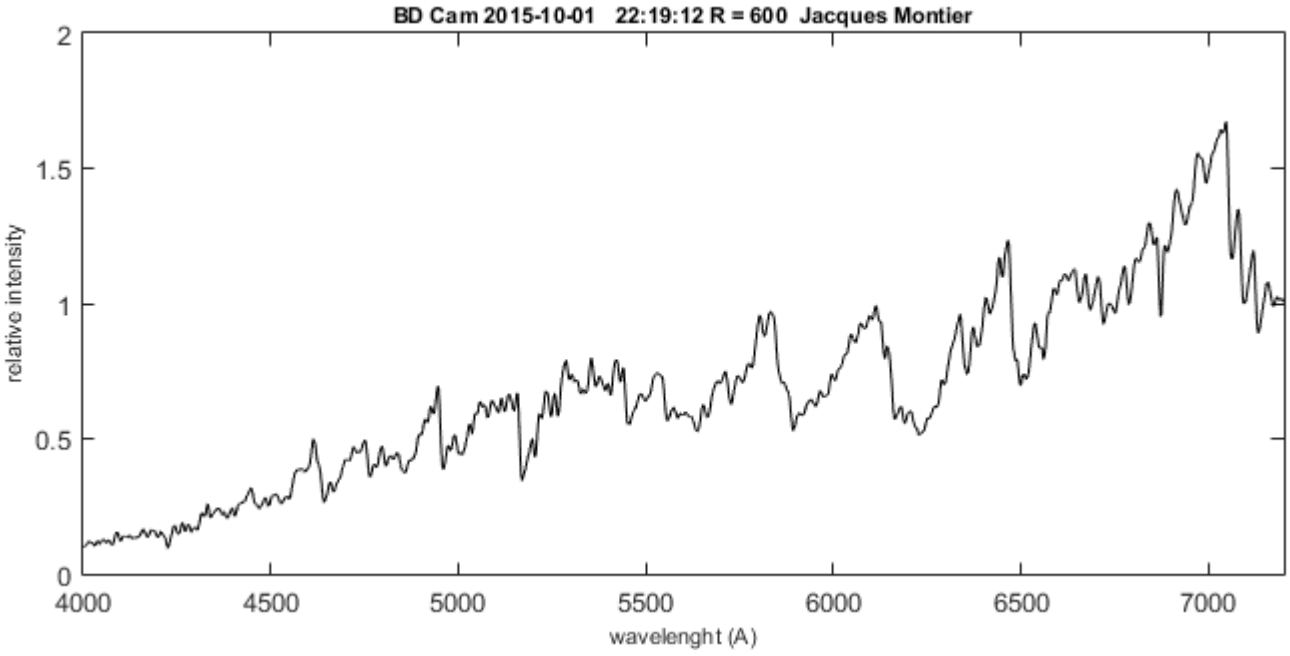
Luminosity slowly declining
(V ~ 10.1)





BD Cam

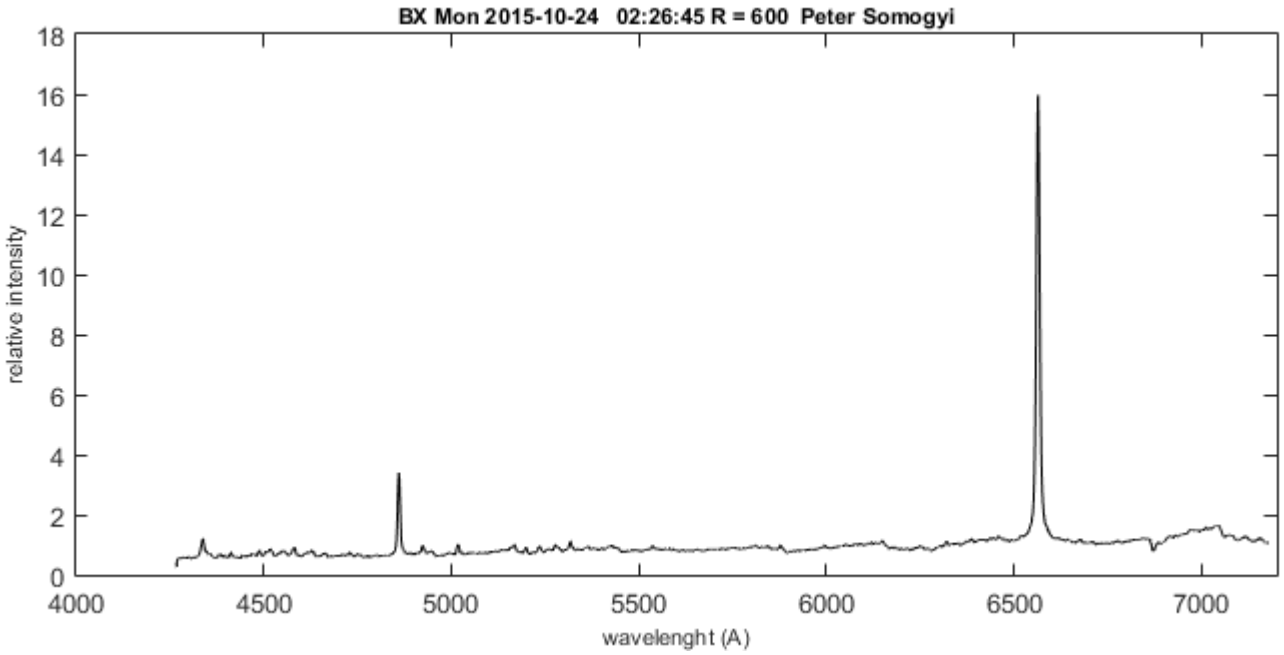
Coordinates (2000.0)	
R.A.	03 42 09.3
Dec.	+63 13 00.5



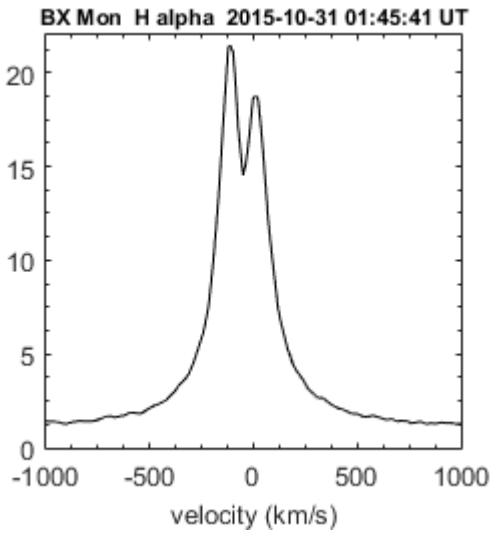
BX Mon

Coordinates (2000.0)	
R.A.	07 25 22.77
Dec.	-03 35 50.8

In the morning sky.



Peter Somogyi Lhires III 150 l/mm

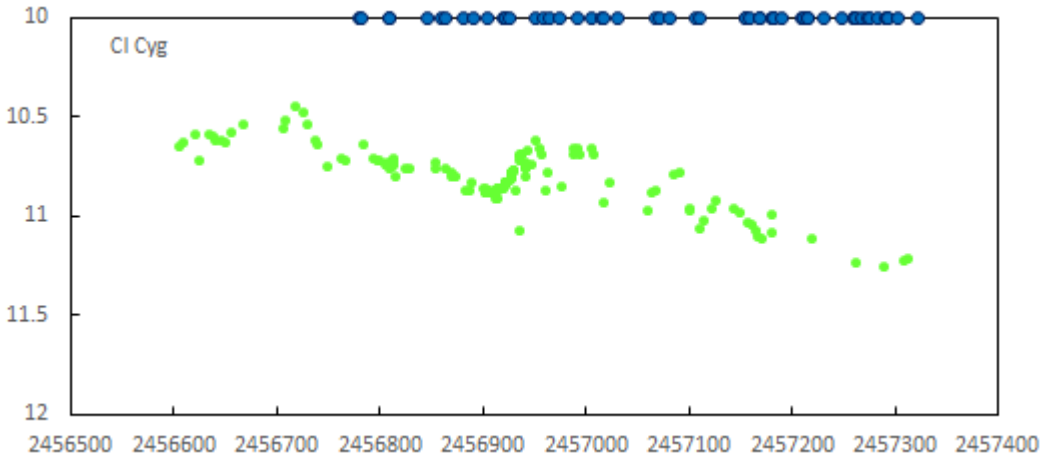


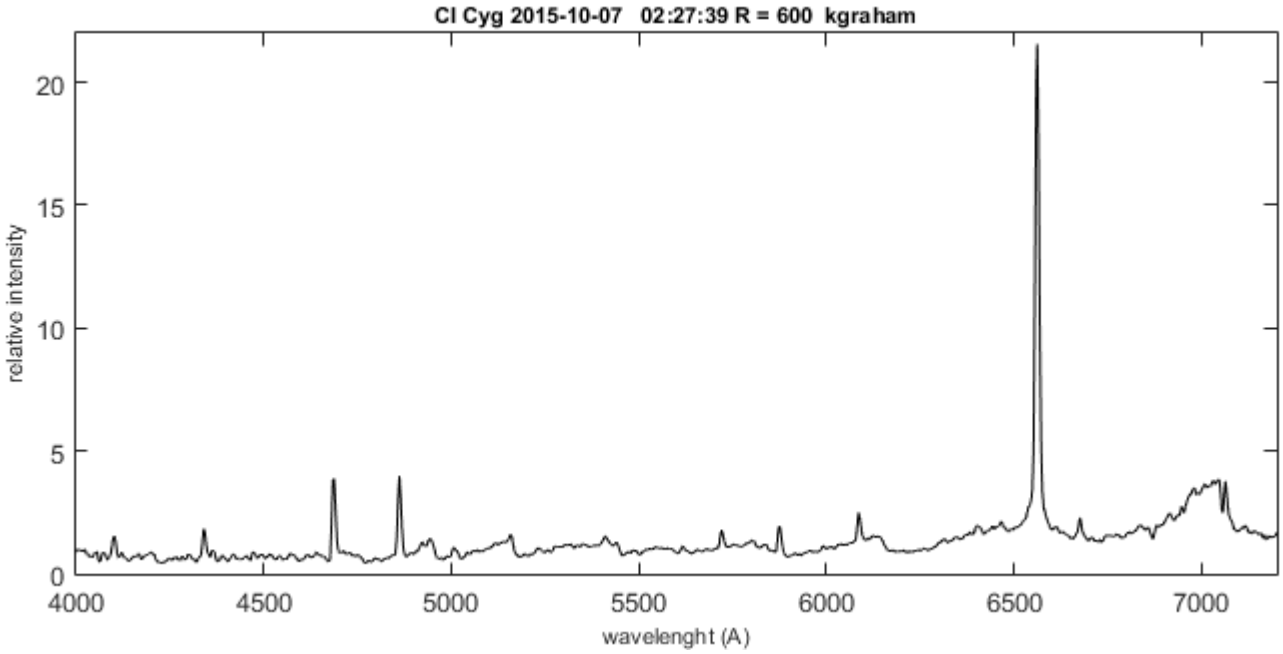
Lhires III 600 l/mm
R = 3000

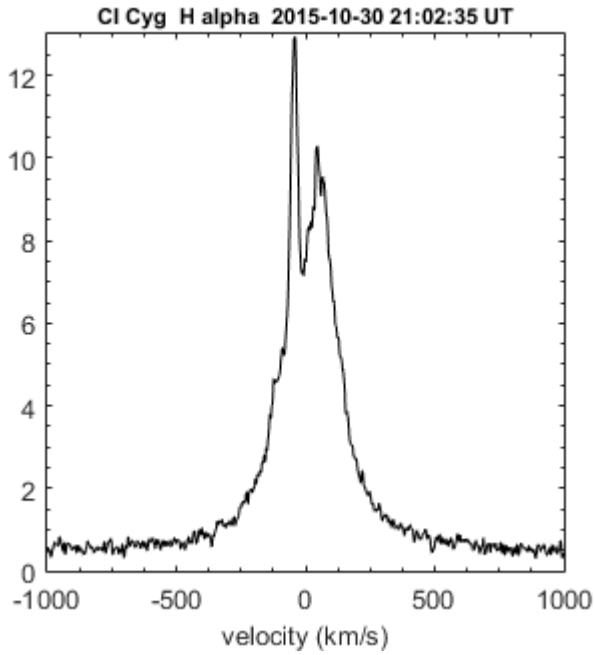
CI Cyg

Coordinates (2000.0)	
R.A.	19 50 11.8
Dec.	+35 41 03.0
Mag V	11.2

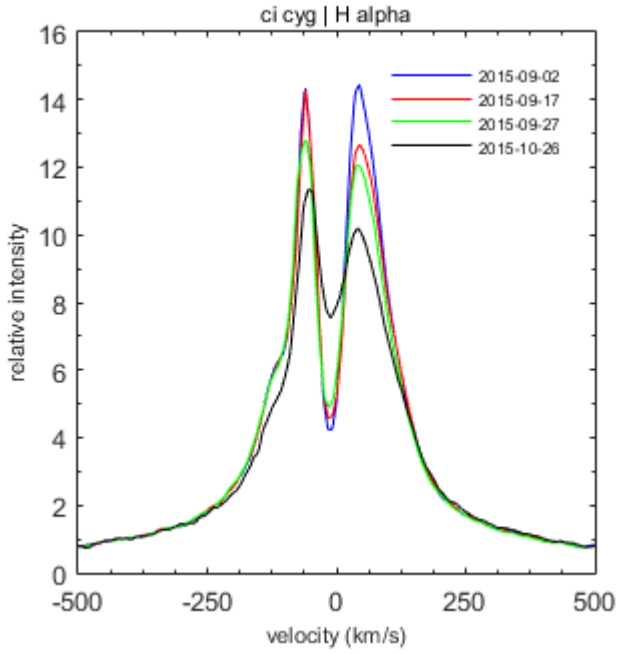
Phase 0.11 to 0.14 according to Fekel & al. (2000) ephemeris

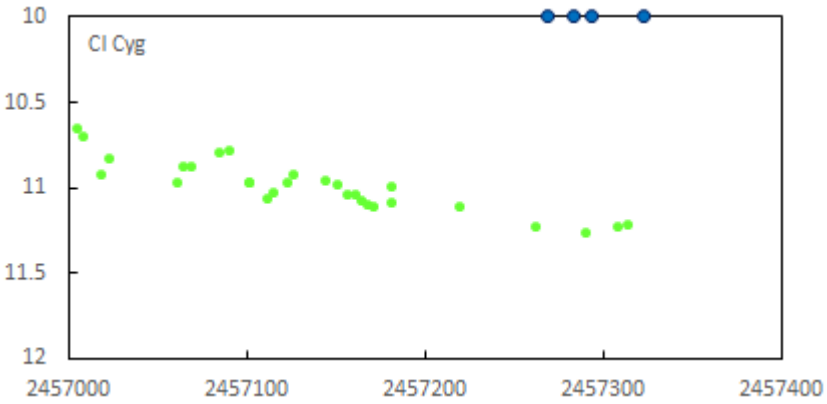




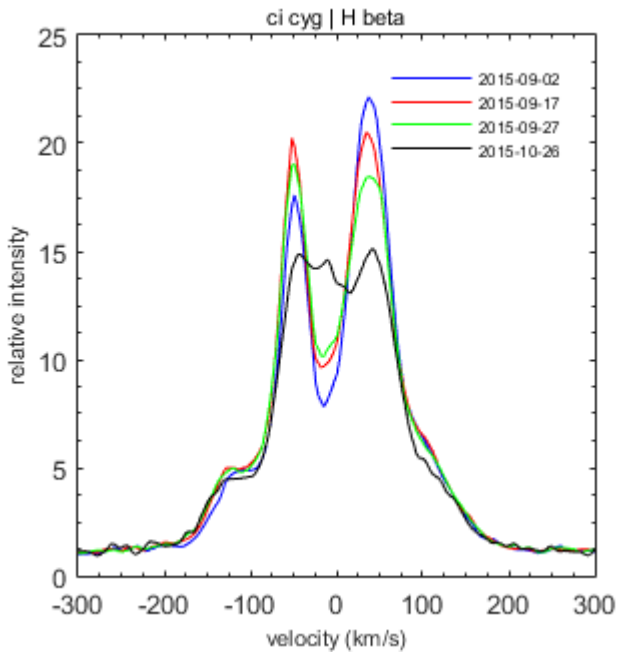


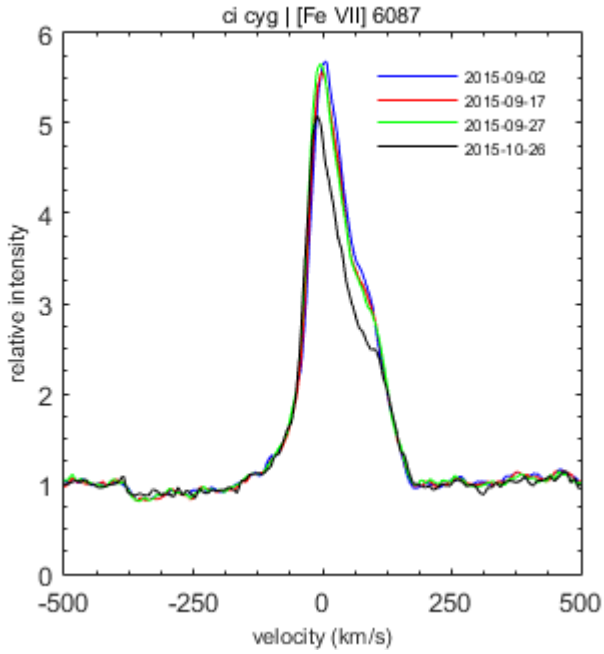
H alpha profile
R = 18000
Lhires III 2400 l/mm
P. Somogyi

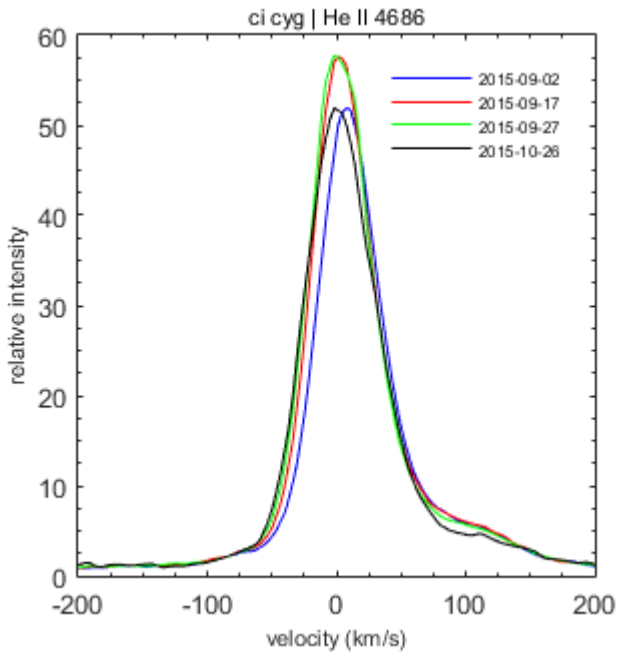


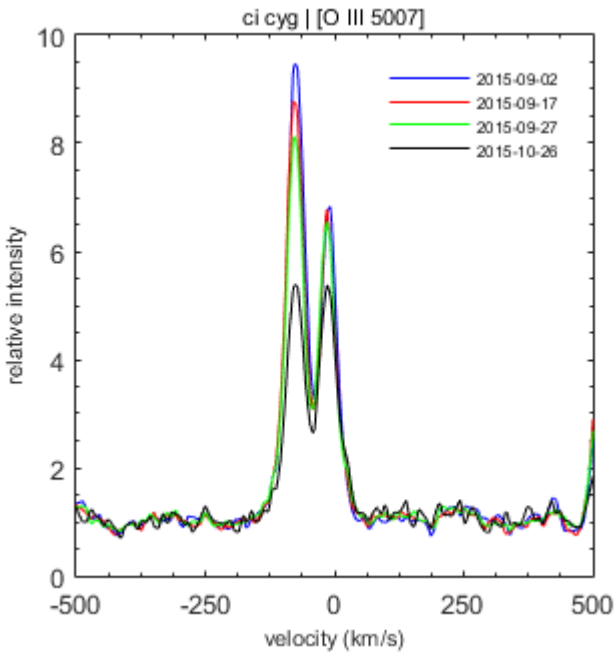


Evolution of some lines in september/october, 2015
With an eshel R = 11000 by F. Teyssier
Note the profile of H beta line late october with a weak emission located at the some velocity than the central absorption.



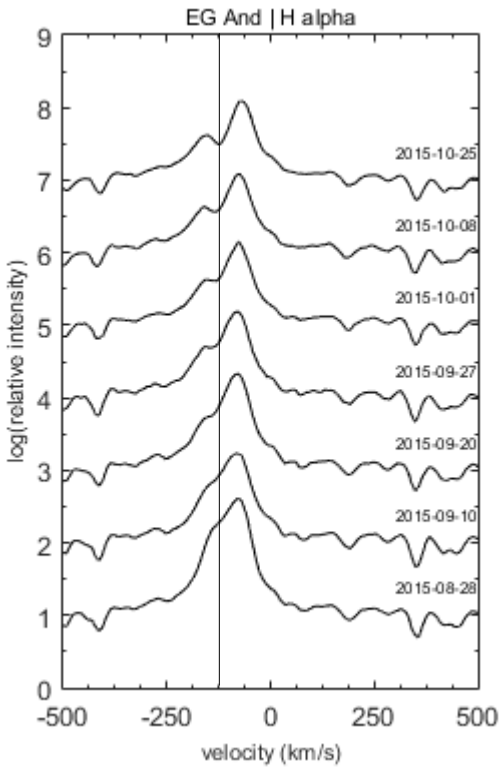


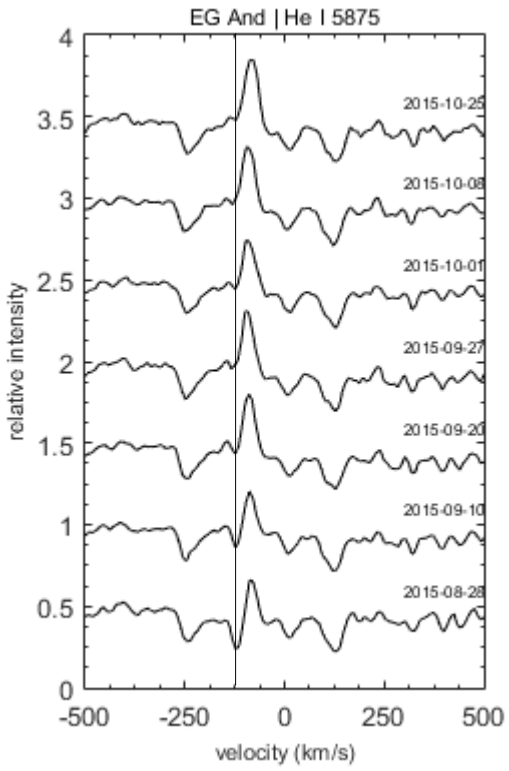


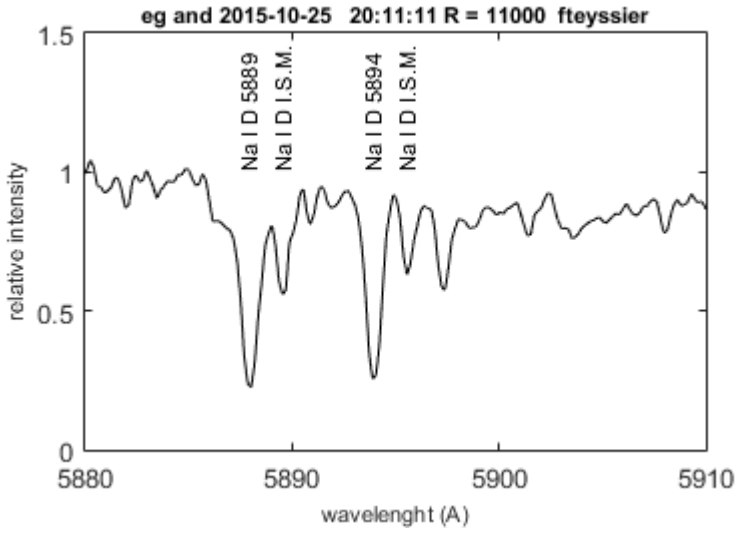


EG And

Coordinates (2000.0)	
R.A.	00 44 3701
Dec.	+40 40 45.7
Mag	7.0 - 7.4

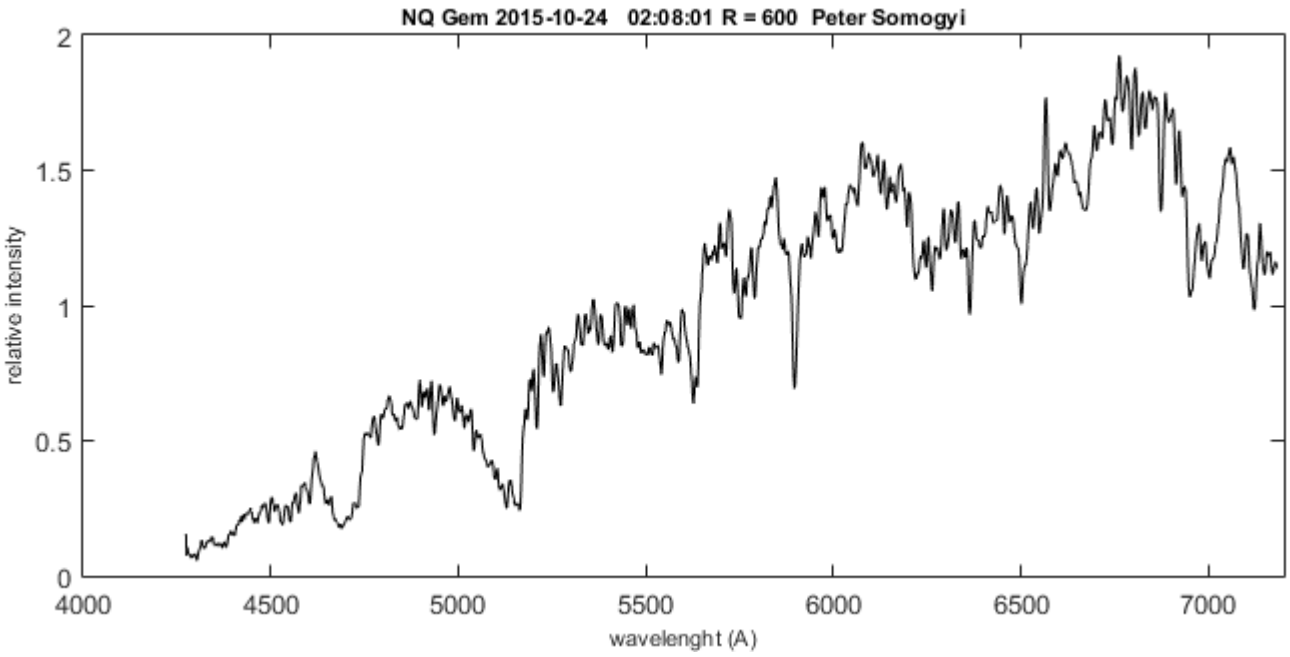






NQ Gem

Coordinates (2000.0)	
R.A.	07 31 54.52
Dec.	+24 30 12.6
Mag	



Date	Phase
28/08/2015	0.384
10/09/2015	0.411
20/09/2015	0.431
27/09/2015	0.446
01/10/2015	0.454

Ephemeris of the spectra

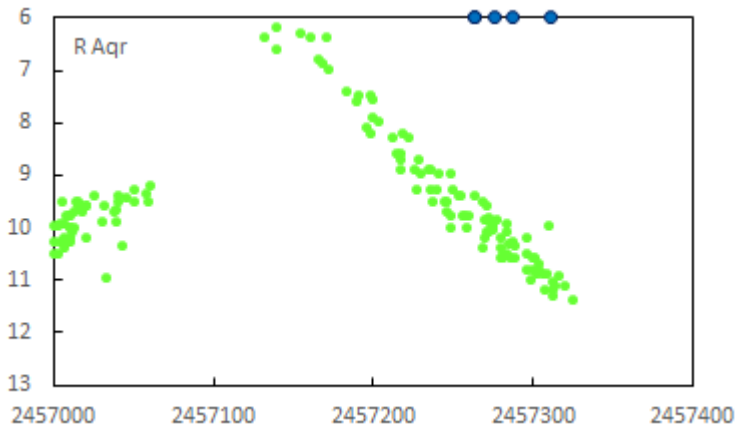
JD0 = 2450804
P = 482.6 d

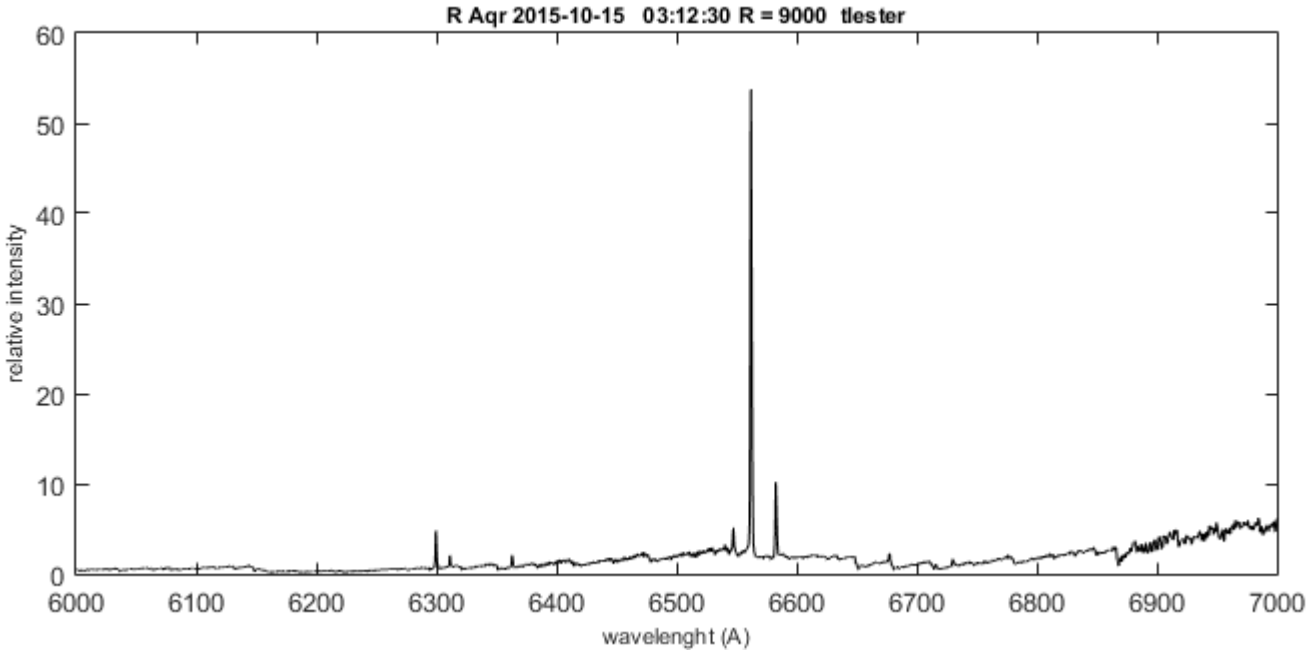
Fekel F.C., Joyce R.R., Hinkle K.H., Skrutskie M.F., 2000, AJ 119, 1375

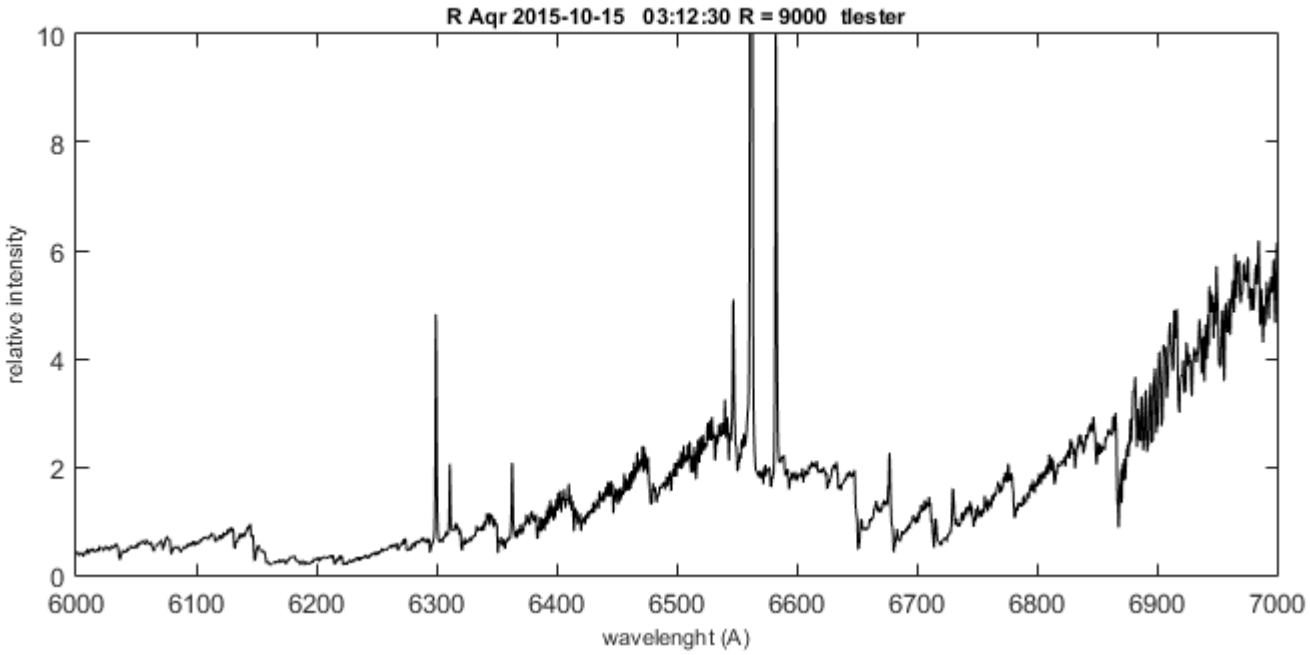
Symbiotics

R AQr

Coordinates (2000.0)	
R.A.	23 43 49.4
Dec.	-15 17 04.1
Mag V	6 - 11

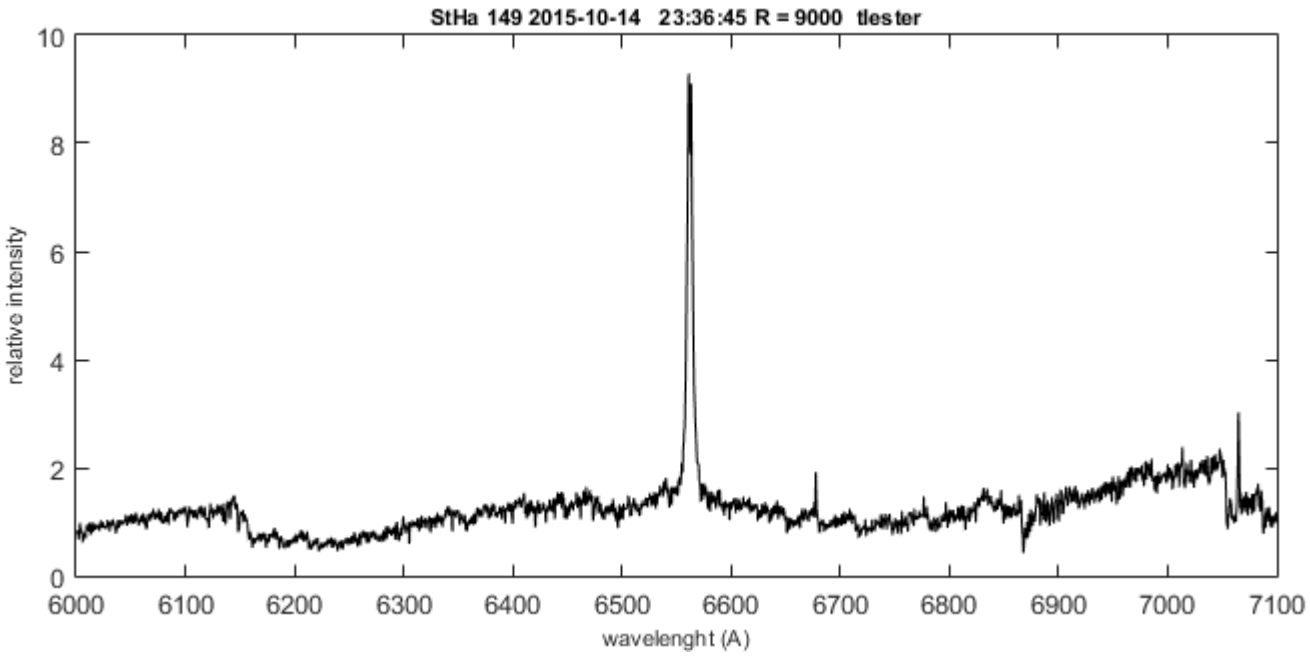


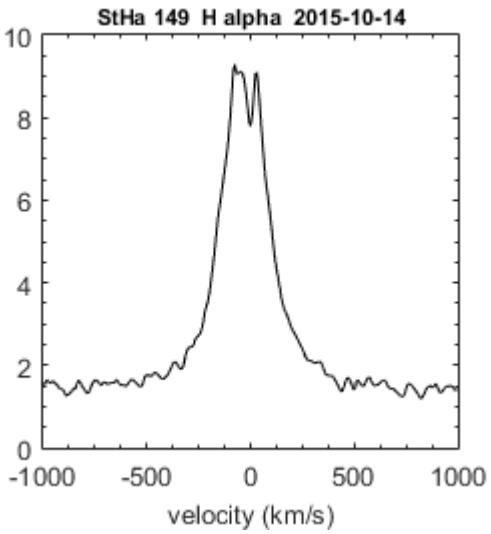




StHa 149

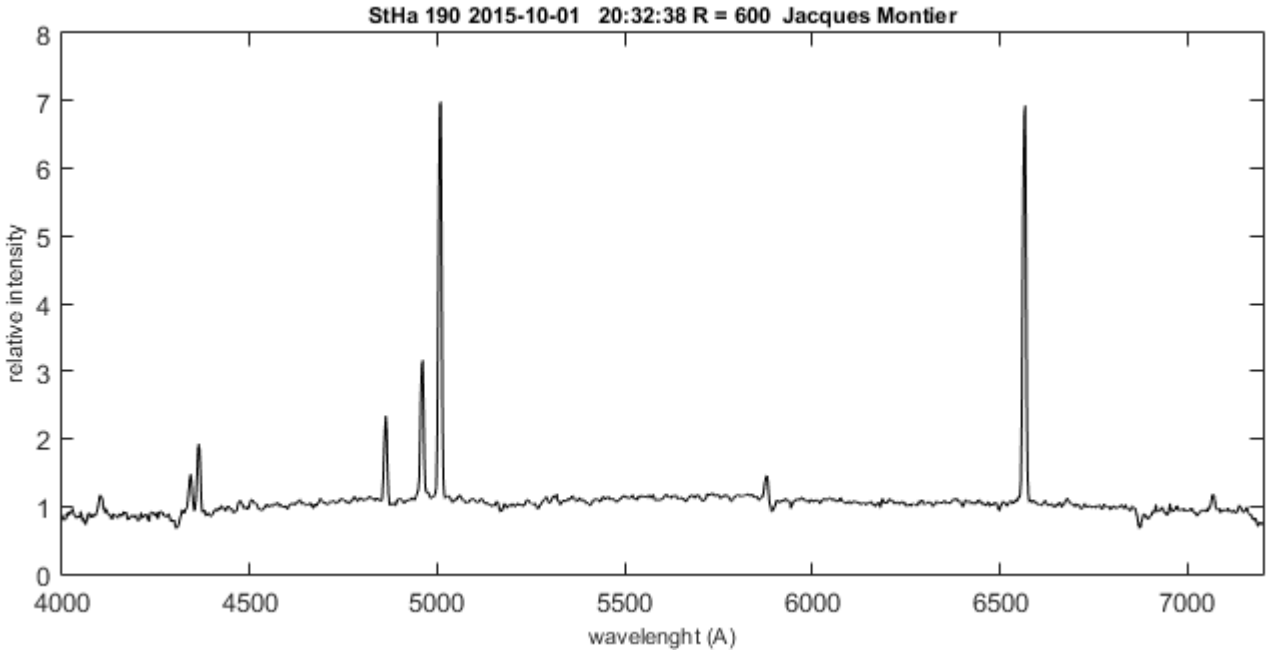
Coordinates (2000.0)	
R.A.	18 18 55.87
Dec.	+27 26 27.7
Mag	





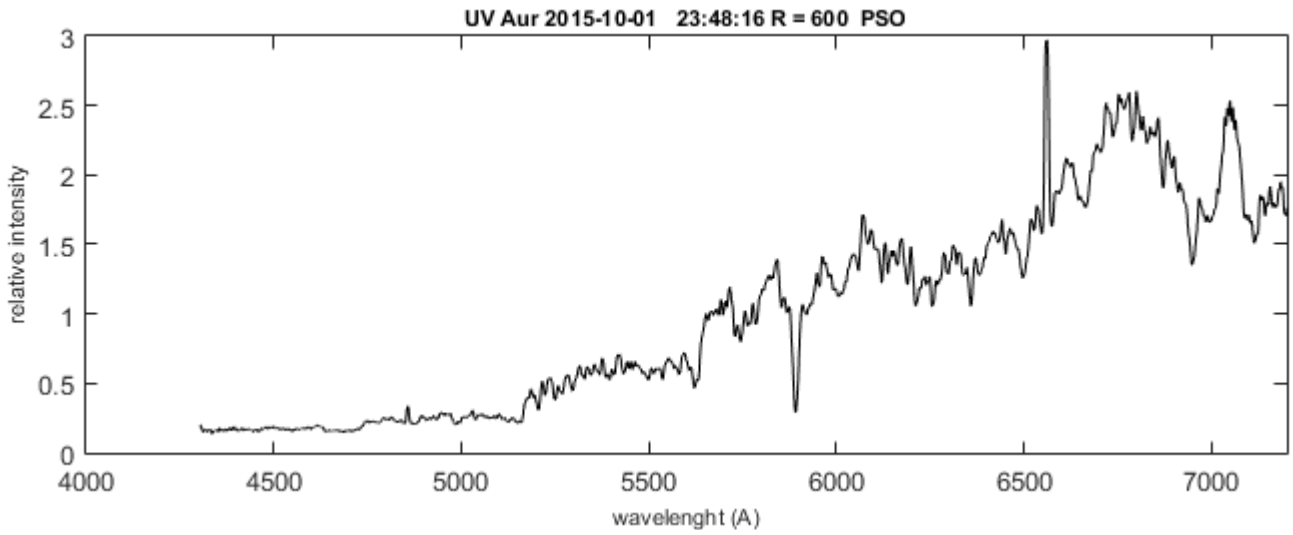
StHa 190

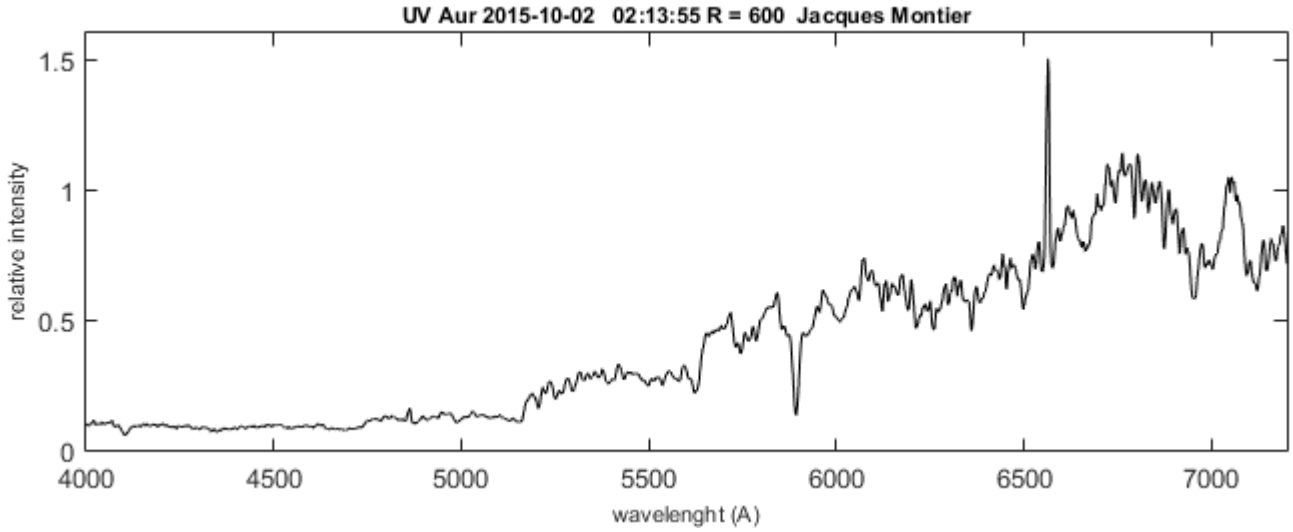
Coordinates (2000.0)	
R.A.	21 41 44.89
Dec.	+02 43 54.4
Mag	~ 10.5

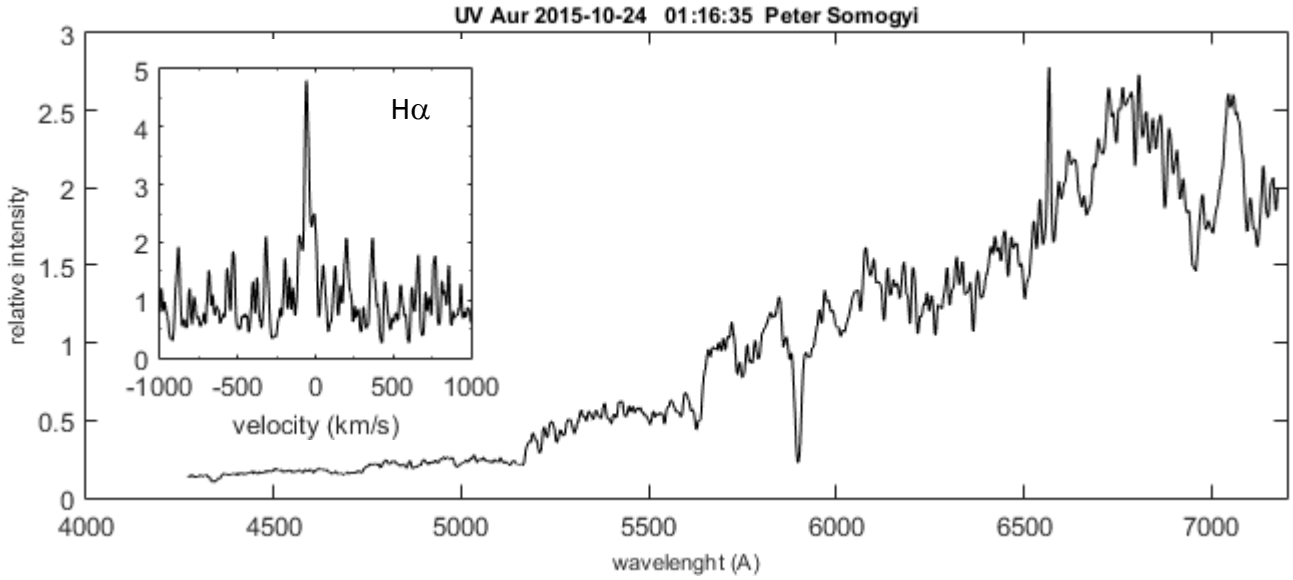


UV Aur

Coordinates (2000.0)	
R.A.	05 21 48.9
Dec.	+32 30 40.2
Mag V	



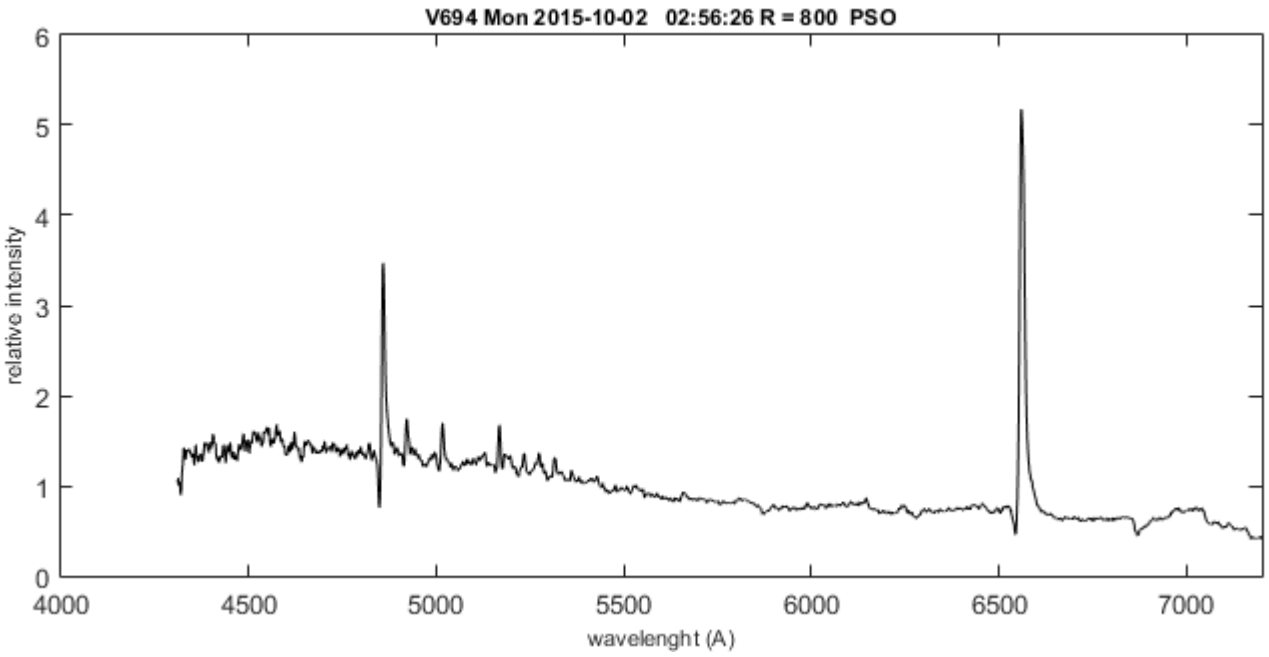


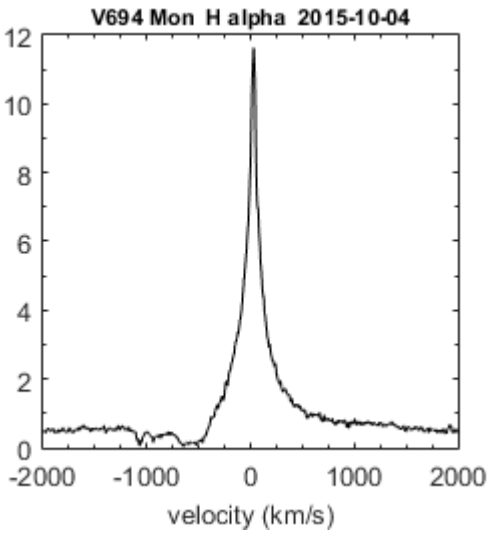


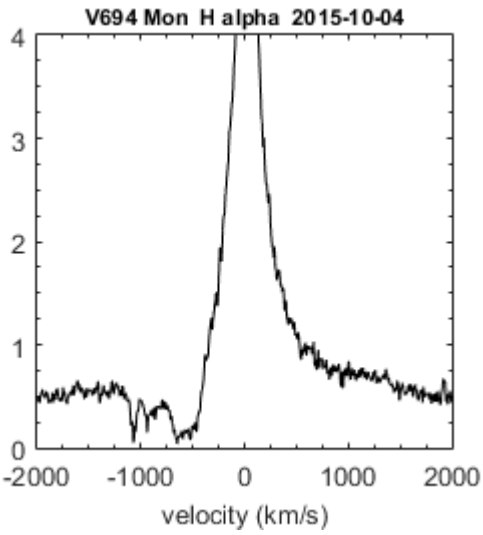
V694 Mon

Coordinates (2000.0)	
R.A.	07 25 51.3
Dec.	-07 44 08.1
Mag V	

First spectrum for the new saison by Peter Somogyi
High coverage of the behaviour of this exotic star is highly recommanded

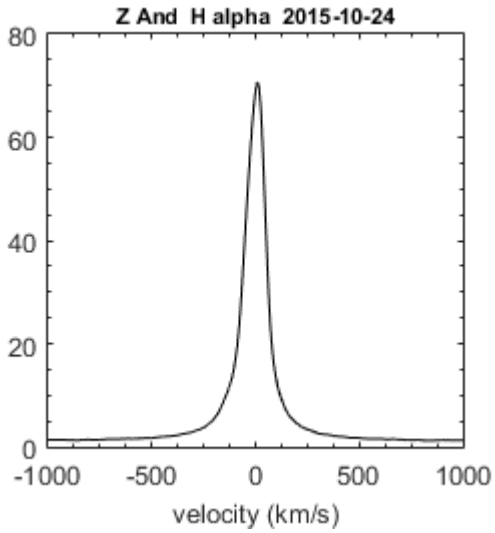




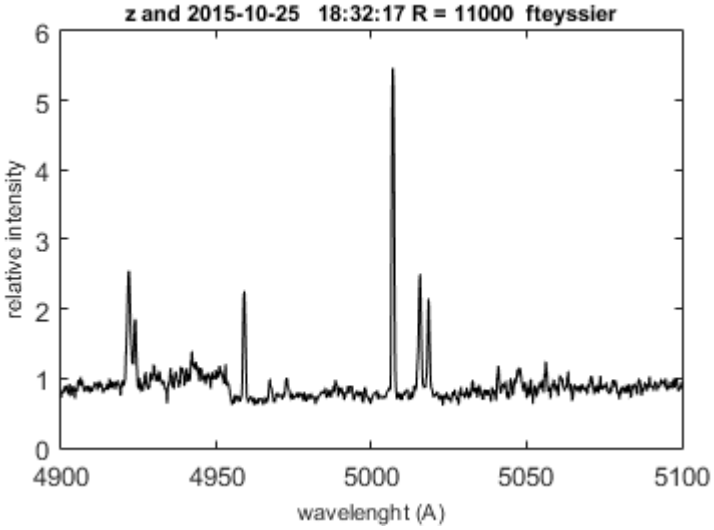


Z And

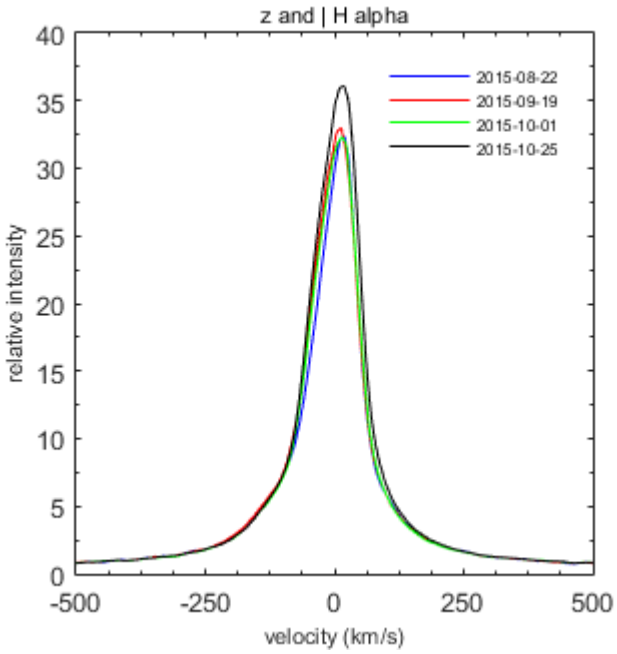
Coordinates (2000.0)	
R.A.	23 33 40
Dec.	48 49 06
Mag V	10.1

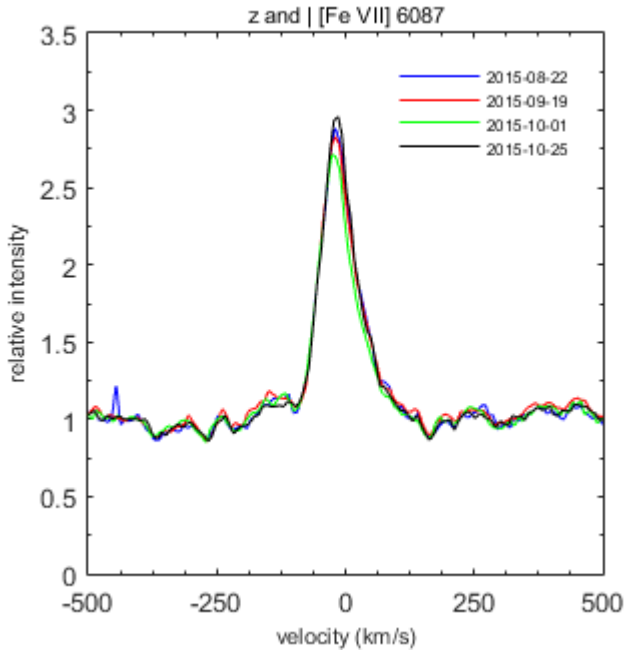


H alpha profile
Paolo Berardi
Lhires III 1200 l/mm R = 6000



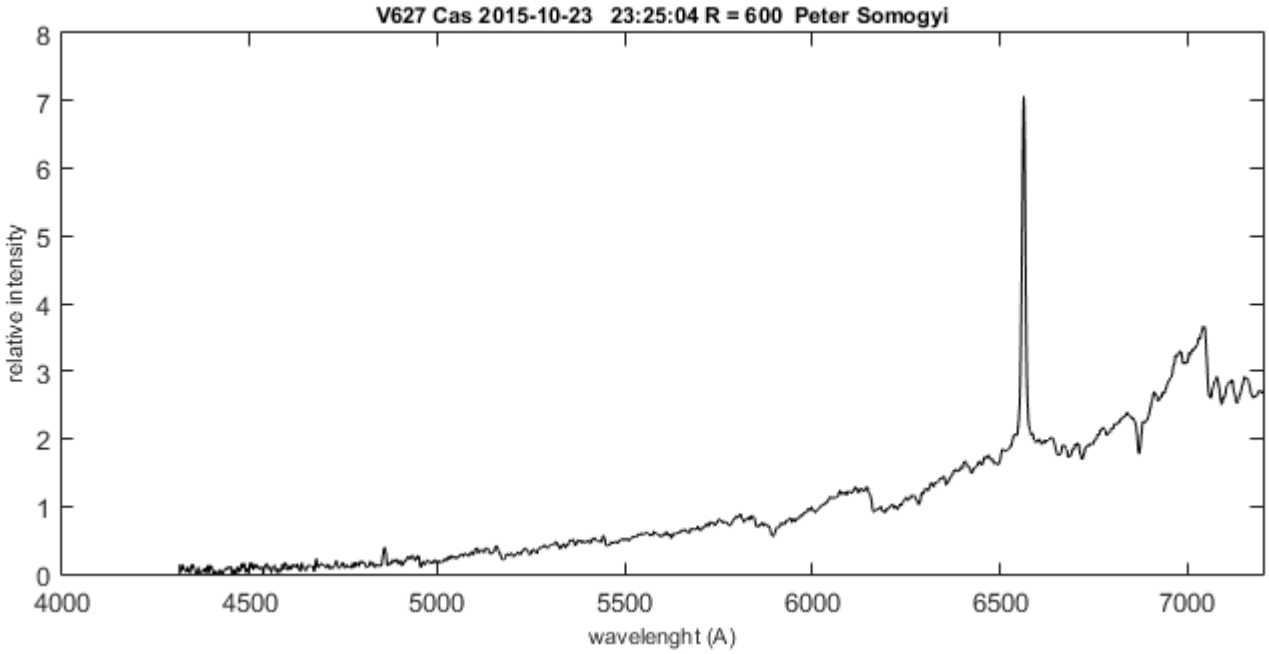
He I region
H alpha and [Fe VII] at R = 11000
Almost constant
F Teyssier





V627 Cas

Coordinates (2000.0)	
R.A.	22 57 41.0
Dec.	+58 49 12.5
Mag V	



ZZ CMi

Coordinates (2000.0)	
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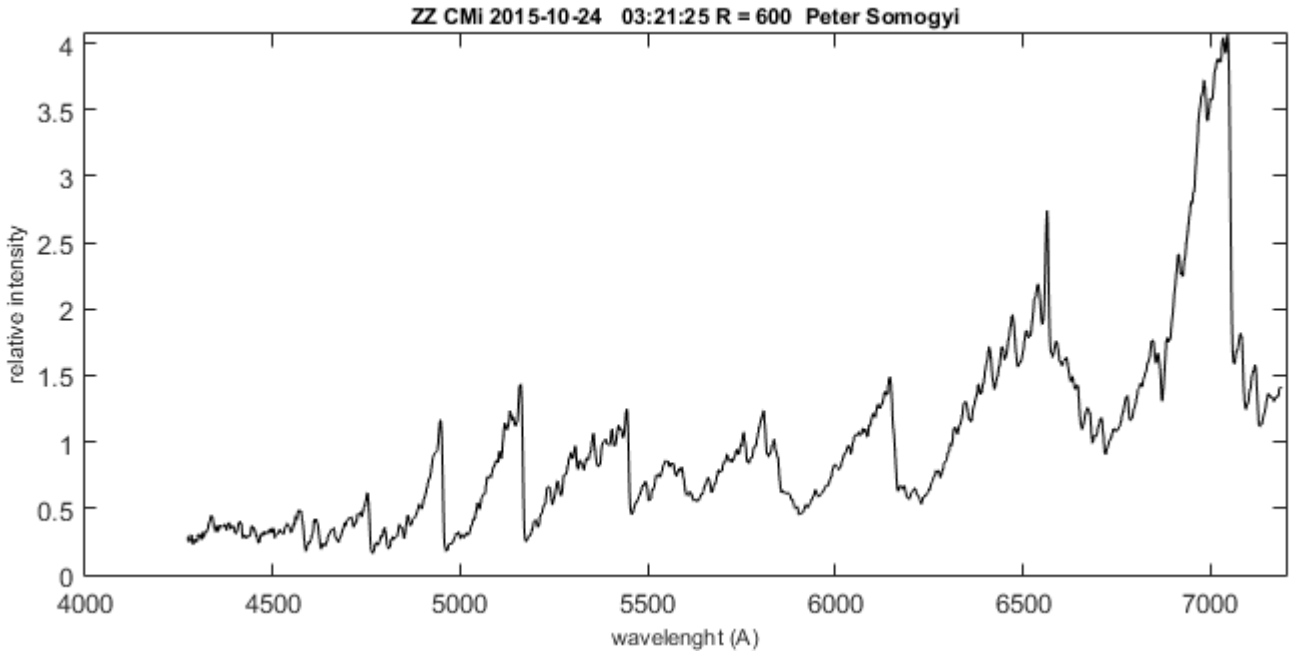
Dec.	+08 53 51.8
Mag V	



SS Cyg

Coordinates (2000.0)	
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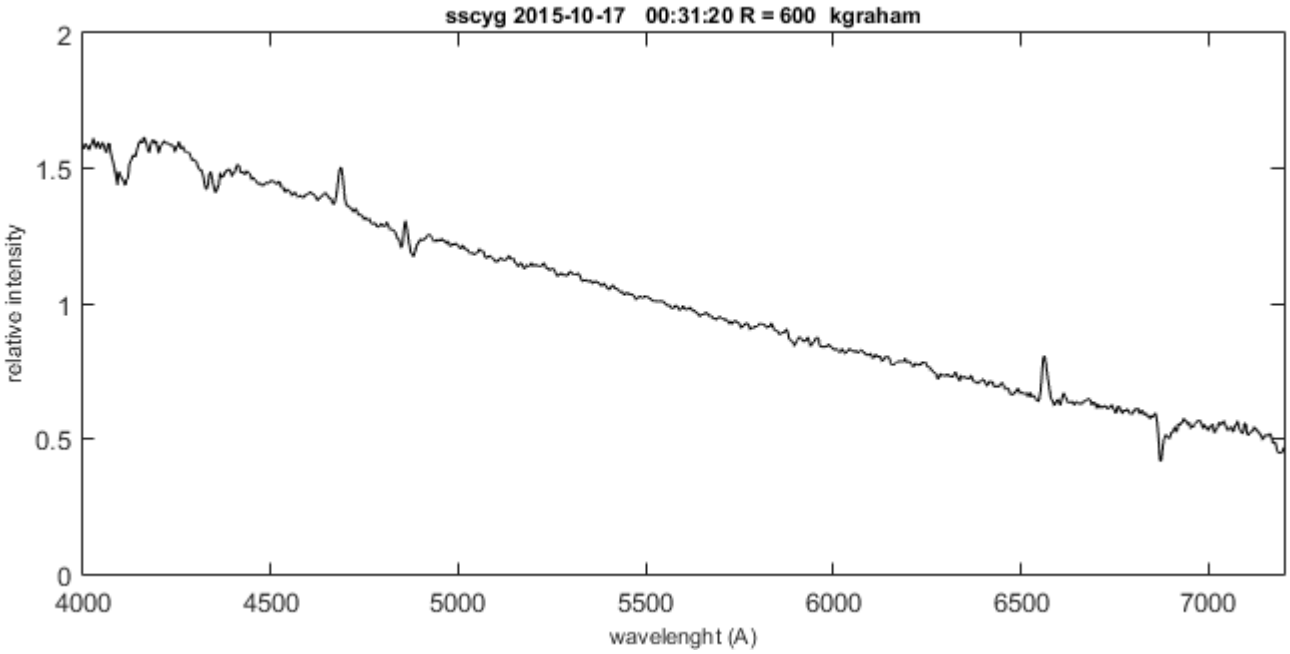
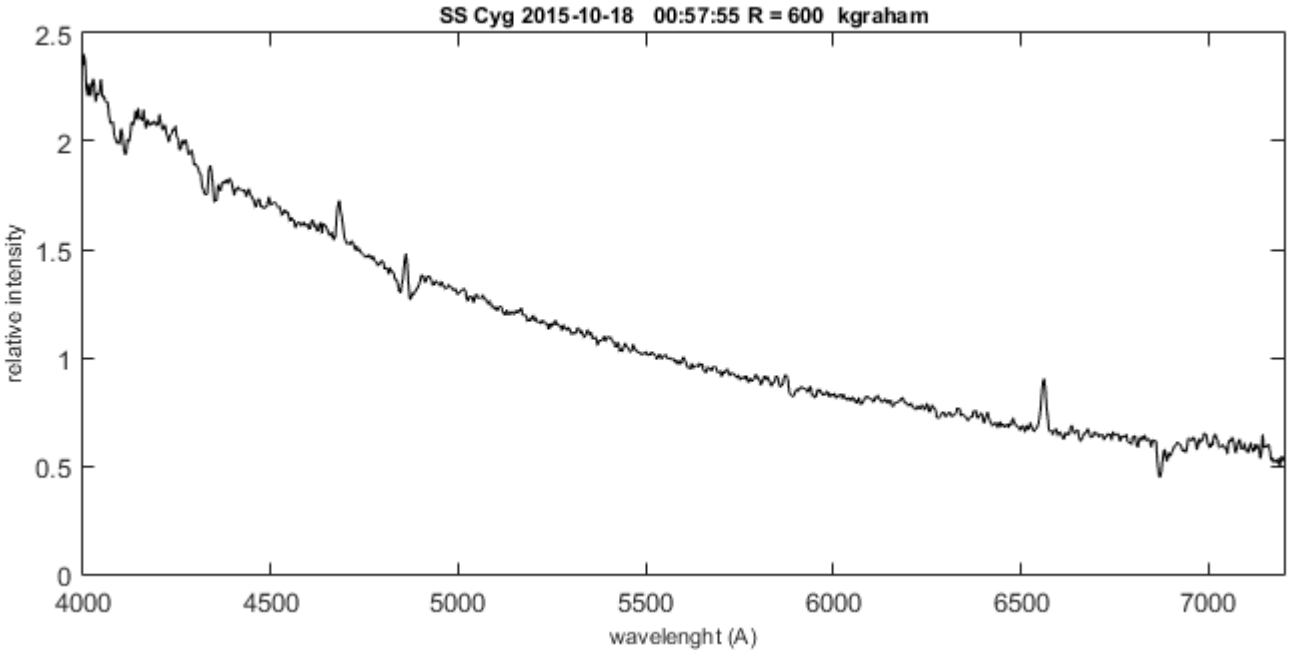
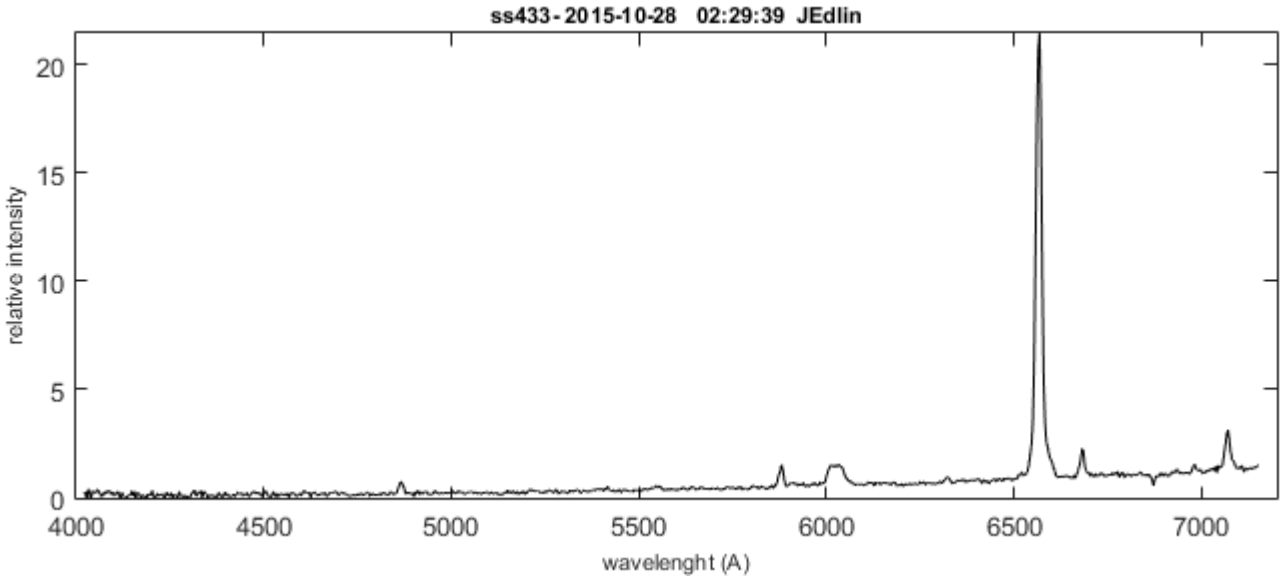
Dec.	+43 35 09.9
Mag V	8.0 - 12.0

October outburst by Keith Graham






ss433 - 2015-10-28 02:29:39 JEdlin
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wavelenght (A)
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10
15
20
4000
4500
5000
5500
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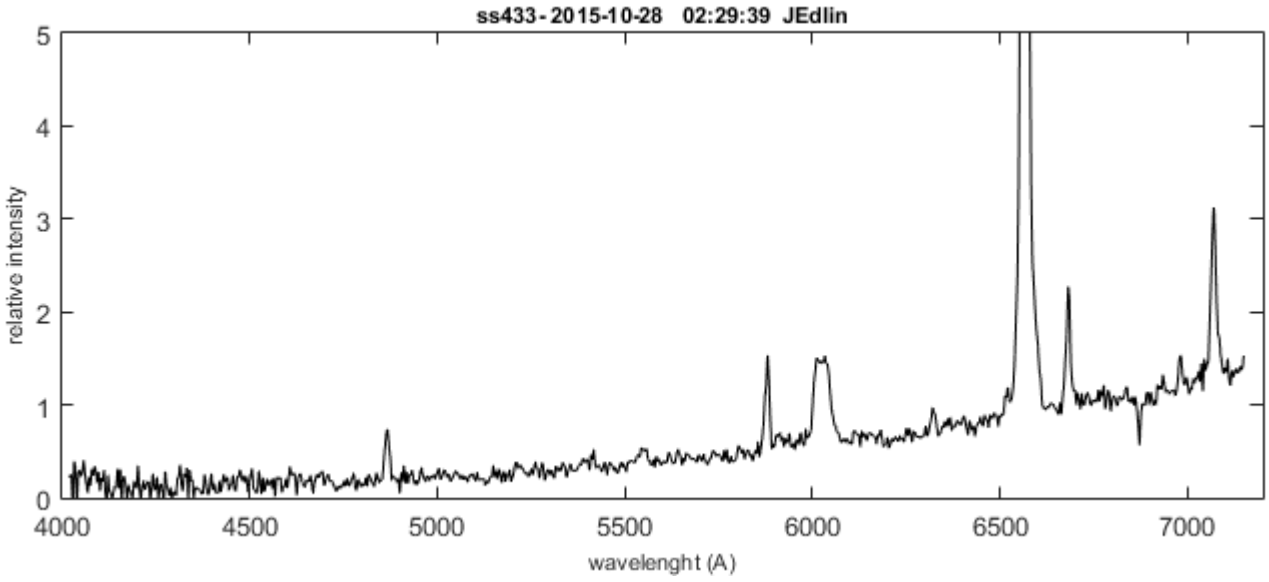
6500
7000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relative intensity
wavelenght (A)
0
1
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4500
5000
5500
6000
6500
7000

Comments on Novae and Symbiotics spectra in October

Steve Shore

It is a delight, intimidating but addictive, to leaf through your spectra. The range of variability you are now catching in the symbiotics and novae is something I had not believed we would ever see spectroscopically.

Flickering has been known (e.g. MWC 560) for decades that arises in the boundary layer of the mass gainer but to see that reflected in the ionization and profiles, to map out the different regions by their relative phasing, is something completely new. Astronomers are, it seems, just waking up to the sort of time variability you're becoming expert at recording. A striking feature of the line profile variations you are collectively finding in these stars is the rapidity of the changes.

But first, let's discuss the nova observations from this month.

V1831 Aql

The O I 7773, 8446 and H-alpha lines show a maximum expansion velocity of between -1500 and -1600 km/s, not an especially high value since both are from excited states. The lack of other lines, other lines, especially H-beta, would be quite a surprise were it not for a possible alternative, that the extinction is especially high. Since the Na I D lines are invisible, although the nova is still (sorry) new, this too is not a particular surprise. The lack of Fe emission would also follow From_the extreme reddening that seems to be indicated (my guess based on this is an E(B-V) >1) which places this at a considerable distance and/or behind molecular material. The centroid of the line, at about +212 km/s, translates into a V_LSR of about 220 km/s. This is a very large differential motion relative to the Sun and also suggests a considerable distance, perhaps about 5 kpc. The neutral hydrogen 21 cm column density, about 1E22/cm^2, translates into E(B-V) of about 1.4 so the Balmer line guess is consistent. Needless to say, this won't b detected as an X-ray source and I would be very surprised if it's detected in radio. The lack of any C I lines is interesting but not especially telling since the O I is directly pumped from the 1302 A ground state. The next thing to watch for is the appearance of [O I] 6300; when that line appears there should be an accompanying increase in the other emission. For now, it's enough to say the nova likely has an expansion velocity of >2000 km/s (intrinsic) and is still in the very opaque stage.

Nova Sgr 2015b = V5668 Sgr

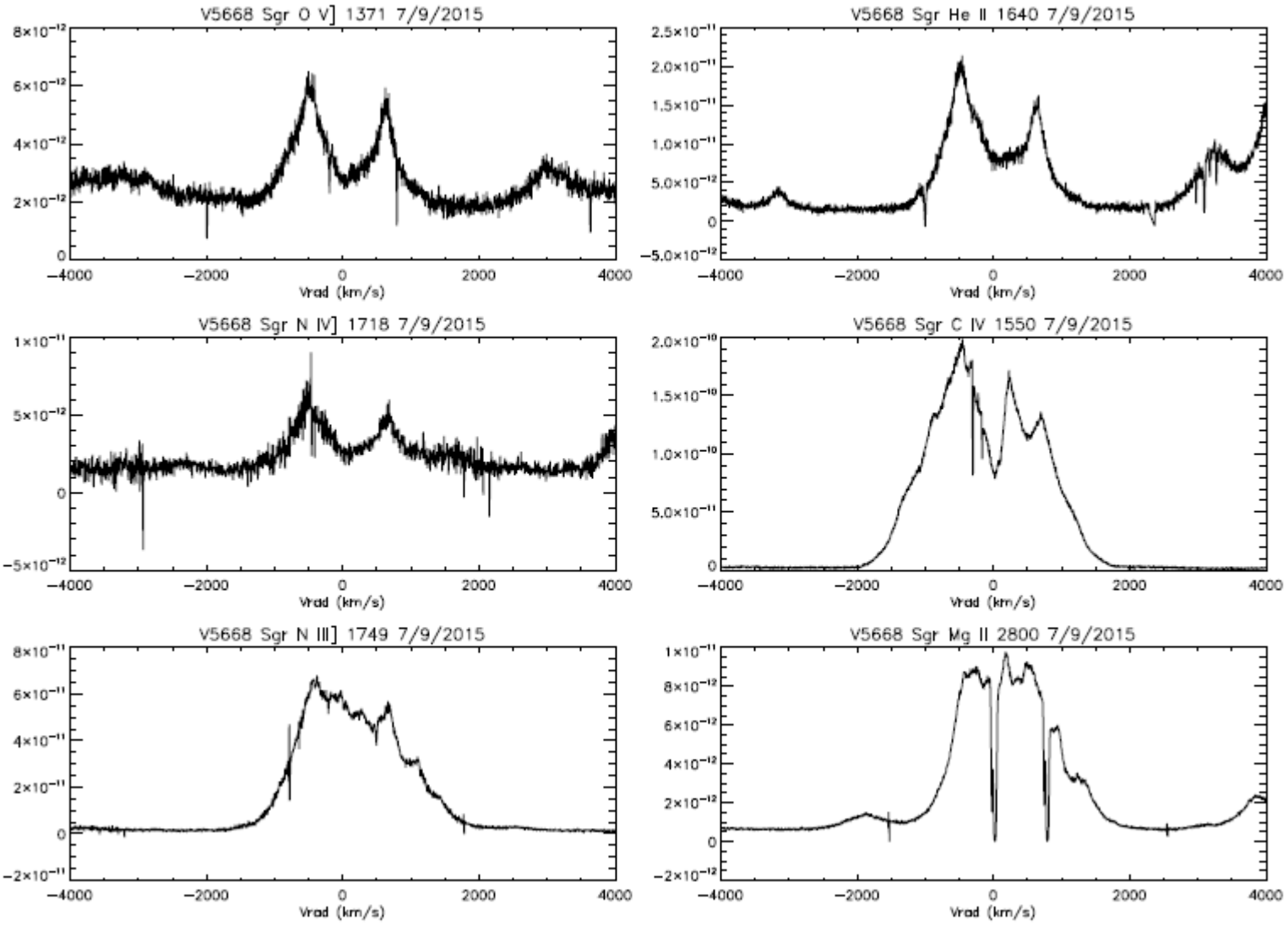
Last night we got the only UV exposures of this nova that will be taken.

Approved as part of an initiative from STScI to extend the time available for ultraviolet observations, Paul Kuin (Leicester) headed a small group to submit the request for a single orbit - not a comprehensive following -- in the post-dust stage. Alas, the proposal for the full program, from last spring, was turned down because we predicted that the nov would be a dust former but that hadn't yet happened. Now, with only one epoch covered, it's up to the studies ofV339 Del and V1369 Cen to tell us what we're seeing.

Since it's hot off the satellite, I haven't had too much time to go at it but am including a set of profiles to give you picture of what's going on. The nova is not at all unusual, a good thing, except for one possible weirdness: there are no Si lines in the spectrum. The Si IV 1400 doublet would normally show up when other low ionization states are still present and there's a definite O I 1302 line. Instead, no Si II 1206 or Si IV is there and the C lines are not especially strange.

Possibly this indicates that the Si condensed, that th grains could be silicates instead of carbonaceous compounds, but that's pure speculation. The N spectrum is well represented and, in the enclosed, notice the N II - N IV profile contrast. This is a density-

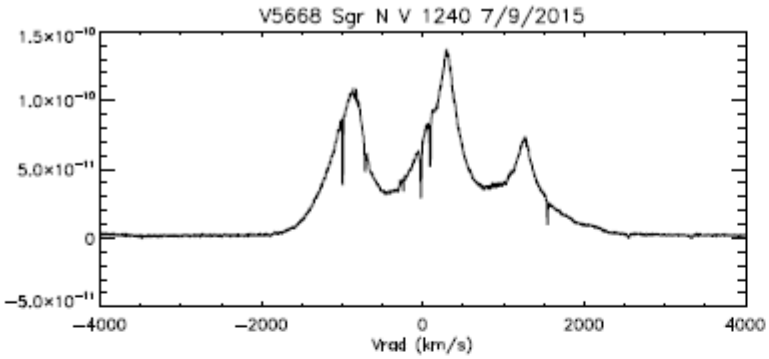
ionization effect. The same is not well seen in O, since we don't have many single lines (the N IV], for instance, is a doublet but with a very large component ratio, the N II 2143 is a singlet). For C, the C II vs. C III] vs C IV shows that the inner ejecta are lower ionization while those in the outer portion are highly ionized. The O V 1371 and N IV] 1718 lines, formed as recombination lines like the He II 1640, 4686 lines and the Balmer series, all show the same profile. This one spectral sequence doesn't tell us all we need to know but there's enough here for an abundance study.

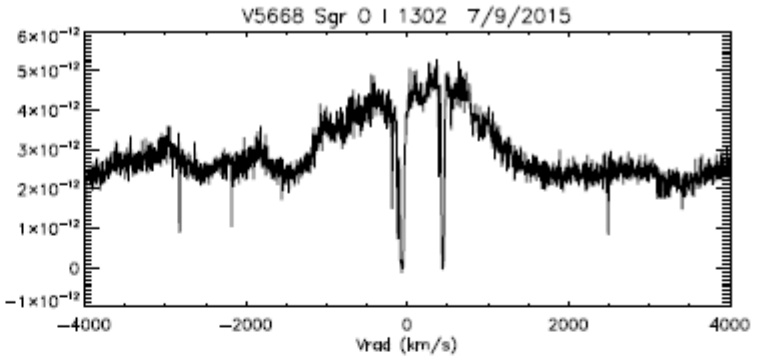


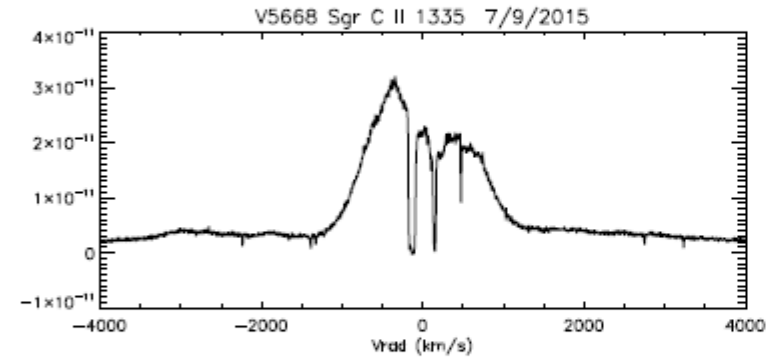
HST UV spectra of Nova Sgr 2015b

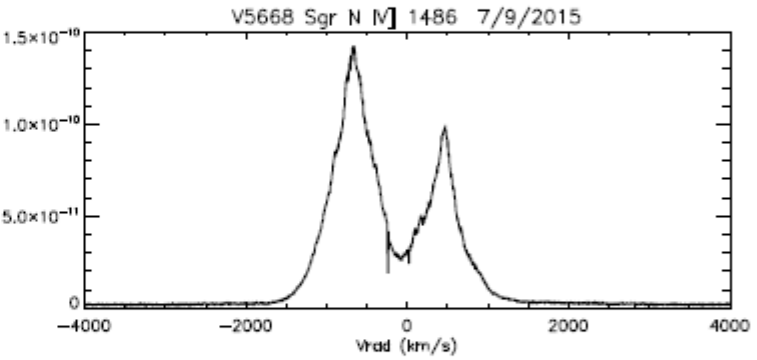
Comments on Novae and Symbiotics spectra in October

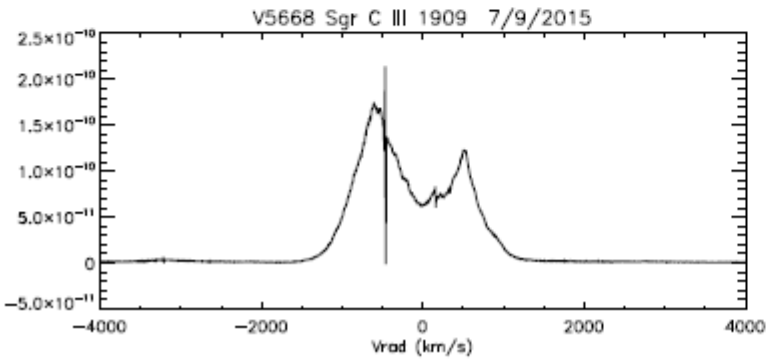
Steve Shore

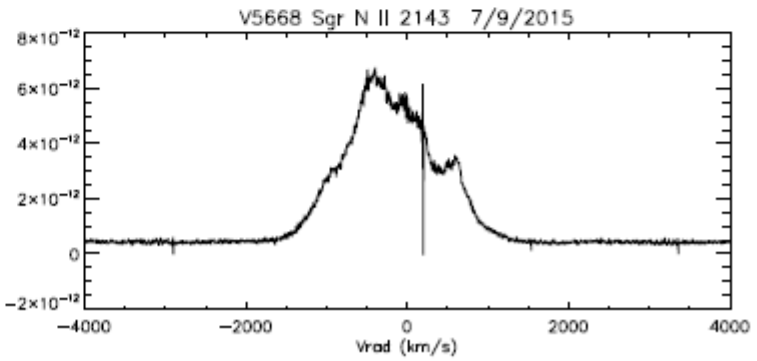












Now for some comments on the individual symiotics:

AG Peg

AG Peg during outburst, like the behavior during the 2006 outburst of AG Dra, is displaying strong variations in the highest ionization lines.

Let's discuss, for a moment, the difference between several of the highest ionization tracers in these stars. The O VI Raman features result from the conversion of O VI 1038,1042 A photons by scattering off of the more distant ambient neutral hydrogen, as we've discussed. Any variation is, therefore, unlikely from the density of the neutral material. It is too extended and tenuous. But around the hot source, the accreting active WD, the matter is much more compact and dense. The timescale for any variation of the source is, consequently, much shorter. This also applies to the FUV and soft X-ray continuum responsible for the strong coronal lines, e.g. [Fe VII] 6086A. If the optical depth in the hard continuum increases, it cuts off the supply to these lines and they shut off on the radiative timescale through recombination and de-excitation. The `hot'' lines are forbidden transitions, hence they are only formed by recombination or collisions.

For instance, He II 1640 and 4686 are recombination lines like the Balmer series but with much lower total optical depth. The [Fe VI]] line is always transparent so any variation is independent of optical depth effects in the line. The changes, if the FUV continuum is extinguished near the WD, could be from a wind originating from that star (as in AG Dra) that locally screens the red giant wind; the indication that this is happening is the change in the Balmer lines (where the asymmetry is likely an increase in th optical depth on the blue side of the line) and the decrease in the higher excitation lines such as He I and He II. Francois Teyssier's sequence shows this.

The disappearance of the Raman transition is fascinating, I would be extremely interesting to know what the 7083/6825 ratio is doing. To explain, the long wavelength feature is also affected by a C II absorption from the red giant wind shortward of the O VI 1042 line that also produces a difference in the profile of the two Raman features.
Notice that the AG Peg spectra obtained by Umberto Sollecchia seem to show, longward of He I 7065, a possible change in the 7083 feature.

For AG Peg, the rise in the optical may be a redistribution in an optically thick wind, not unlike what we see in novae during the rise to maximum light, or o a genuine increase in the luminosity of the source and an expansion of the radius of the pseudo-photosphere around the WD.
The resulting softening (cooling) of the continuum -- being local to the hot source, can happen on a dynamical timescale (in other words, within less than days) and the photon propagation time in the red giant wind leave no light travel effect because the system is sufficiently compact to not be measurable. For the sequences, such as Thierry Lemoult's lovely sequence for H-alpha on very short timescale, there are issues of delays because of the size of the region over which the line is formed
(which can also decrease the contrast for short-term variability). For
example, it's possible that the peak variations re because different parts of the wind (the recedeing vs. approaching portions) vary differentially because of the light travel time. We saw something like this in the V407 Cyg outburst and it would only be reasonable in such high cadence series.

It's important that the highest velocities of the wings of the Balmer lines, that are partly dynamical and partly scattering in origin, are almost invariant. During the outbursts,I should mention, it's especially important to get fluxes whenever possible since the lines are formed in a different region than the continuum so the equivalent width (integrated relative emission strength) isn't directly linked to the line changes -- a constant line could weaken relative to the continuum so depending on the signal/noise value of the spectrum the line could appear to weaken.

CI Cyg

Changes in H-alpha for CI Cyg in Francois and Peter's spectra may also be a change in optical depth on the blue side of the profile, it looks like there's am incipient absorption feature at about -100 km/s in the last spectrum.

Again, changes in the ionization and/or in the Lyman alpha line change the population of the lower state of H-alpha and can produce absorption.

The invariable of the central absorption isn't surprising since the orbital timescales are much longer than the duration of the sequences.

The longer the interval of observation, the better the chance of catching a periodic variation or ejections from the components.

As an additional comment, there are several contributors to the variation of the line and continuum spectra of the symbiotics. There is clearly a disk present, as wer've discussed wind accretion carries angular momentum and forms a circulation around the mass gainer. If the disk varies, so will the continuum. Changes in the luminosity of the WD, possible continuing nuclear burning provoked by the accretion (non-explosive) continues as long as there's a supply of matter and being unstable, there are thermal pulses that increase the luminosity within th WD envelope and produce an expansion. Maintaining mechanical balance as the system goes into tilt thermally leas to a rapid expansion (again, without ejection but possible accompanying wind) that reduces the effective temperature and changes the ionization balance of the wind. The density of the environment is not going to vary much unless the giant is a Mira or pulsating variable, in which case its mass loss rate can change.

If all this seems very general and uncertain for the interpretation of any one system you're right. It is. There are enough processes happening on a wide variety of timescales (e.g. pulsational, hence mechanical; nuclear for the mass gainer; transport timescales in the disk and themal instabilities of the accretion disk itself if it is opaque enough) that it's only with diligent continuing high cadence observations of those you're all contributing -- that can unravel the individual contributors. Novae are quite simple by comparison, once the explosion occus the main event is over. Symbiotics are a sort of "gift tht keeps giving" for as long as the WD is able to accrete. I also should mention that there is an accretion wake in almost steady state, at least in the hydrodynamic models, that trails the WD. This i unstable on dynamical imescales, days in general, and that must variably contribute.

Steve Shore
11-11-2015

Novae

High spectral resolution monitoring of Nova V339 Delphini with TIGRE
De Gennaro Aquino, I.; Schröder, K.-P.; Mittag, M.; Wolter, U.; Jack, D.; Eenens, P.; González-Pérez, J. N.; Hempelmann, A.; Schmitt, J. H. M. M.; Hauschildt, P. H.; Rauw, G.
Astronomy & Astrophysics, Volume 581, id.A134, 79 pp
http://adsabs.harvard.edu/abs/2015A%26A...581A.134D

A comprehensive description of the development of Nova Del 2013
With a big list of identified lines and a spectral atlas of lines

With references to ARAS data base

> *A rather large collection of amateur spectra of V339 Del has been collected and made publicly available by the members of the Astronomical Ring for Access to Spectroscopy (ARAS) project[1]. This data set covers a large time span from approximately five hours after discovery until 600 days after discovery, with spectral resolution ranging from 500 to 10 000. These observations have been discussed in Shore et al. (2013f,a,b) and Skopal et al. (2014).*
>
> [1] http://www.astrosurf.com/aras/novae/Nova2013Del.html

Symbiotics

Mass-loss Rate by the Mira in the Symbiotic Binary V1016 Cygni from Raman Scattering
Sekeráš, M.; Skopal, A.
The Astrophysical Journal, Volume 812, Issue 2, article id. 162, 8 pp. (2015)
http://adsabs.harvard.edu/abs/2015ApJ...812..162S

Transient accretion disc-like envelope in the symbiotic binary BF Cygni during its 2006-2015 optical outburst
Tomov, N. A.; Tomova, M. T.; Bisikalo, D. V.
Astronomische Nachrichten, Vol.336, Issue 7, p.690
http://adsabs.harvard.edu/abs/2015AN....336..690T

About ARAS initiative

Astronomical Ring for Access to Spectroscopy (ARAS) is an informal group of volunteers who aim to promote cooperation between professional and amateur astronomers in the field of spectroscopy.

To this end, ARAS has prepared the following roadmap:

• Identify centers of interest for spectroscopic observation which could lead to useful, effective and motivating cooperation between professional and amateur astronomers.
• Help develop the tools required to transform this cooperation into action (i.e. by publishing spectrograph building plans, organizing group purchasing to reduce costs, developing and validating observation protocols, managing a data base, identifying available resources in professional observatories (hardware, observation time), etc.
•Develop an awareness and education policy for amateur astronomers through training sessions, the organization of pro/am seminars, by publishing documents (web pages), managing a forum, etc.
• Encourage observers to use the spectrographs available in mission observatories and promote collaboration between experts, particularly variable star experts.
• Create a global observation network.

By decoding what light says to us, spectroscopy is the most productive field in astronomy. It is now entering the amateur world, enabling amateurs to open the doors of astrophysics. Why not join us and be one of the pioneers!

Be Newsletter
Previous issues :
http://www.astrosurf.com/aras/surveys/beactu/index.htm

Spectra of 28 CMa are requested
See : http://www.spectro-aras.com/forum/viewtopic.php?f=5&t=1288

VV Cep campaign
http://www.spectro-aras.com/forum/viewforum.php?f=19

Submit your spectra

Please :
- respect the procedure
- check your spectra BEFORE sending them
Resolution should be at least R = 500
For new transcients, supernovae and poorly observed objects,
SA spectra at R = 100 are welcomed

1/ reduce your data into BeSS file format
2/ name your file with: _novadel2013_yyyymmdd_hhh_Observer
novadel2013: name of the nova, fixed for this object

Exemple: _chcyg_20130802_886_toto.fit

3/ send you spectra to
Novae, Symbiotics : François Teyssier
Supernovae : Christian Buil
VV Cep Stars : Olivier Thizy

to be included in the ARAS database

Download previous issues :
http://www.astrosurf.com/aras/novae/InformationLetter/InformationLetter.html

Further information :
Email francoismathieu.teyssier at bbox.fr