The 2011 Eruption of T Pyx

A. Ederoclite
CEFCA

Collaborators

- A. Altamore (UniRoma3)
- A. Cassatella (UniRoma3)
- M. Della Valle (OAC)
- R. Gilmozzi (ESO)
- L. Izzo (UniRoma1)
- E. Mason (STScI)
- F. Patat (ESO)
- L. Schmidtobreick (ESO)
- P. Selvelli (OATs)
- C. Tappert (UV)
- S. Thater (Univ. Potsdam)
- B. Williams (STScI)

T Pyx: a bit of history

(Uthas et al. 2010)
$P_{orb} \sim 1.83$hours

T Pyx: a bit of history

(Uthas et al. 2010)
$P_{orb} \sim 1.83$hours

$M_{\rm WD} \sim 0.7 \pm 0.2 {\rm M}_{\odot}$

T Pyx: a bit of history

(Uthas et al. 2010)
$P_{orb} \sim 1.83$hours

$M_{\rm WD} \sim 0.7 \pm 0.2 {\rm M}_{\odot}$

$t_2 \sim 62$ days

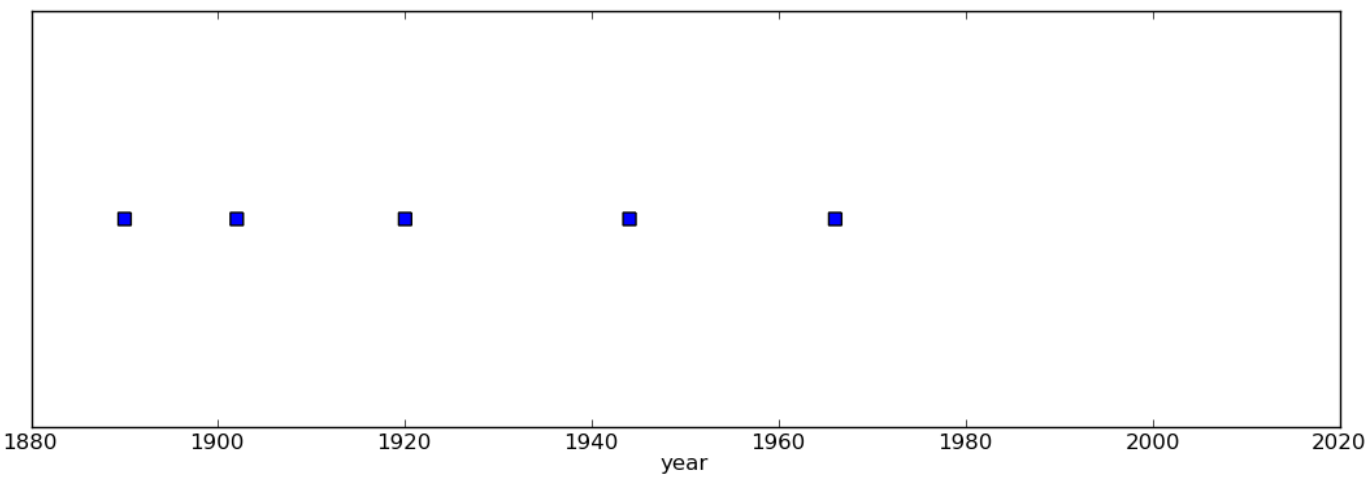
T Pyx: a bit of history

(Uthas et al. 2010)
$P_{orb} \sim 1.83$hours

$M_{\rm WD} \sim 0.7 \pm 0.2 M_{\odot}$

$t_2 \sim 62$ days

Previous explosions: 1890, 1902, 1920, 1944, 1966.



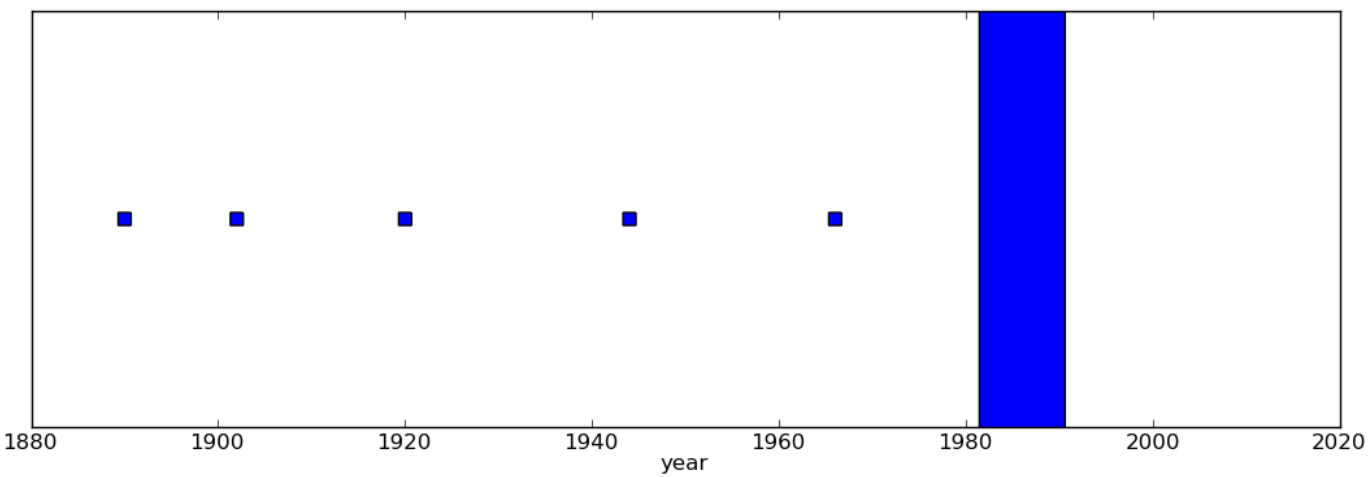
T Pyx: a bit of history

(Uthas et al. 2010)
$P_{orb} \sim 1.83$hours

$M_{\rm WD} \sim 0.7 \pm 0.2 M_{\odot}$

$t_2 \sim 62$ days

Previous explosions: 1890, 1902, 1920, 1944, 1966.



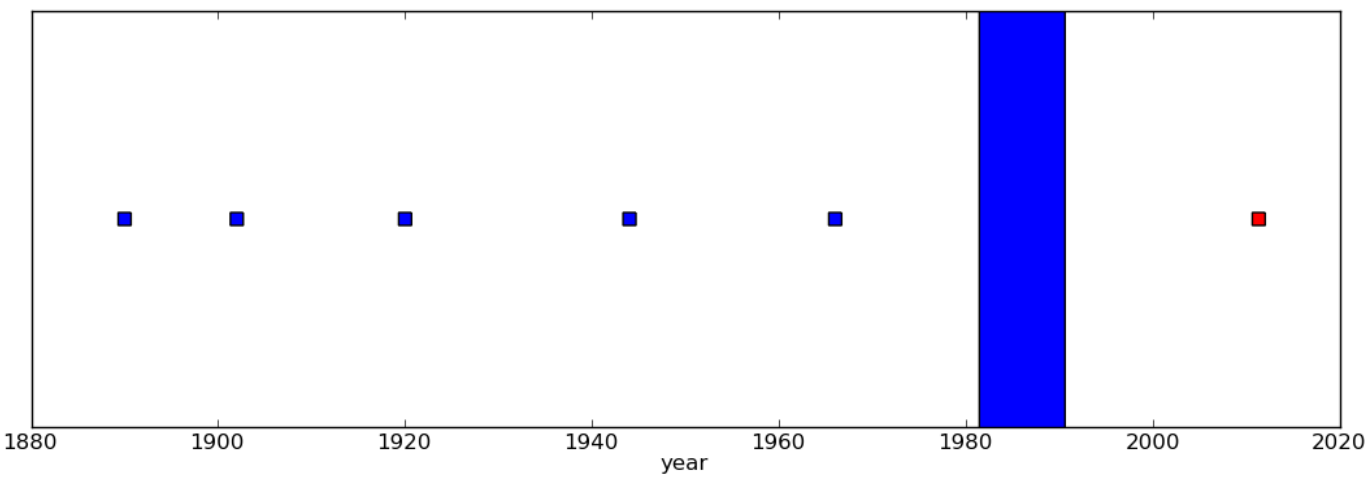
T Pyx: a bit of history

(Uthas et al. 2010)
$P_{orb} \sim 1.83$hours

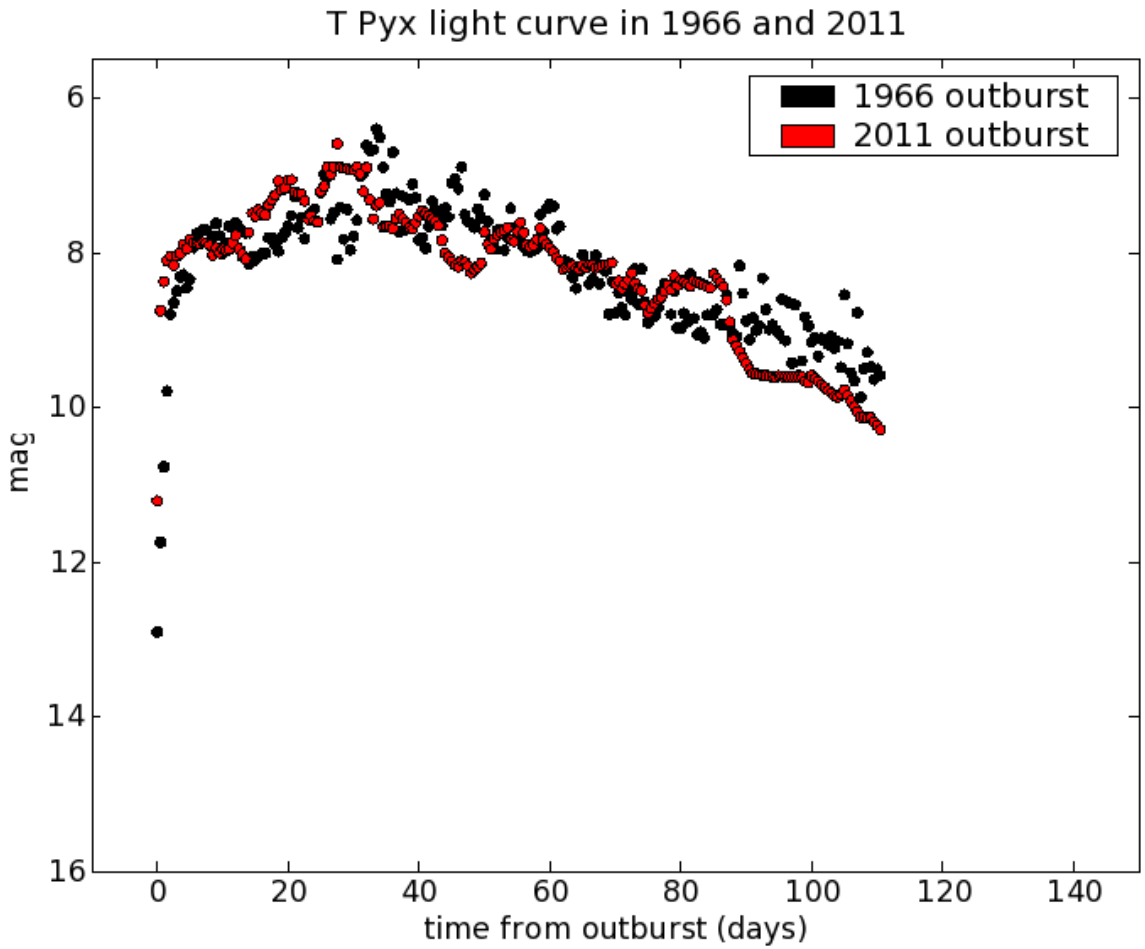
$M_{\rm WD} \sim 0.7 \pm 0.2 M_{\odot}$

$t_2 \sim 62$ days

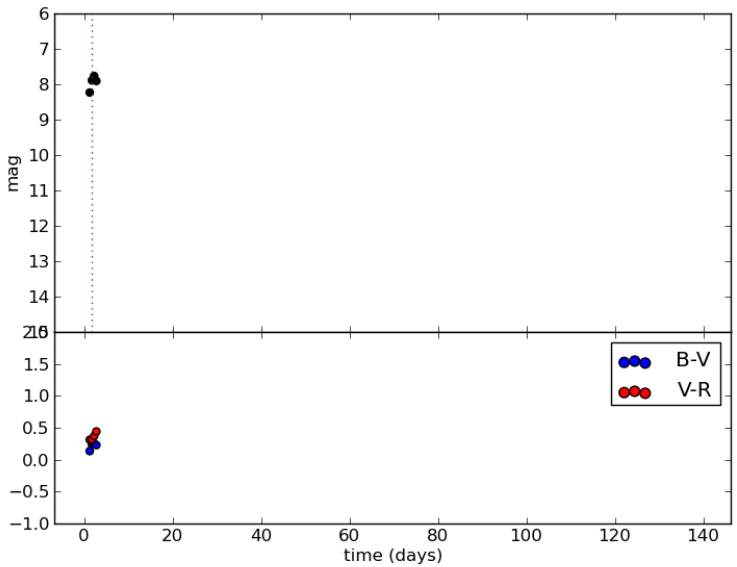
Previous explosions: 1890, 1902, 1920, 1944, 1966.

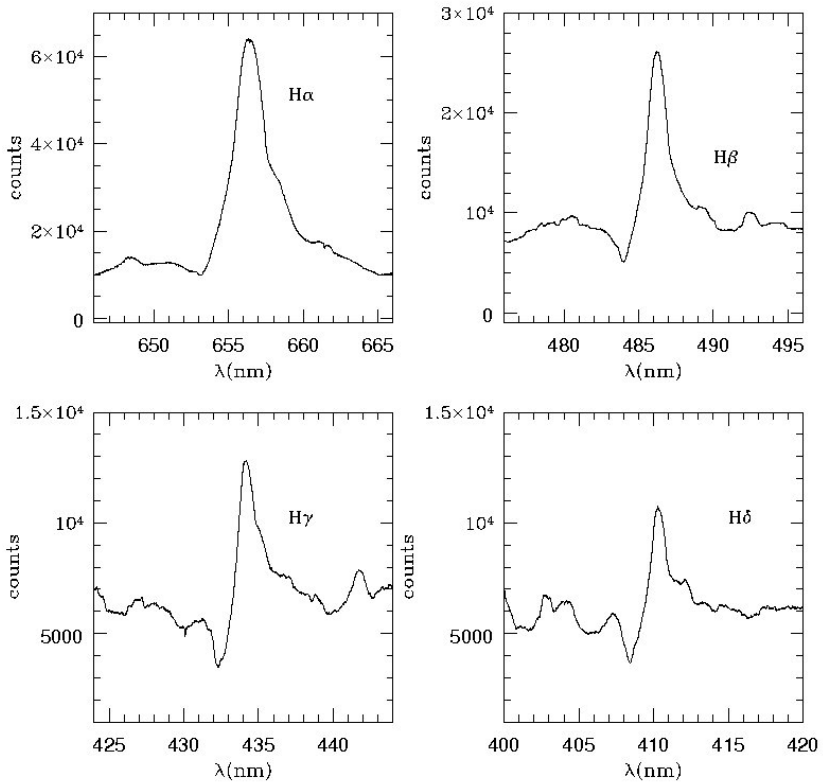


T Pyx: the light curve

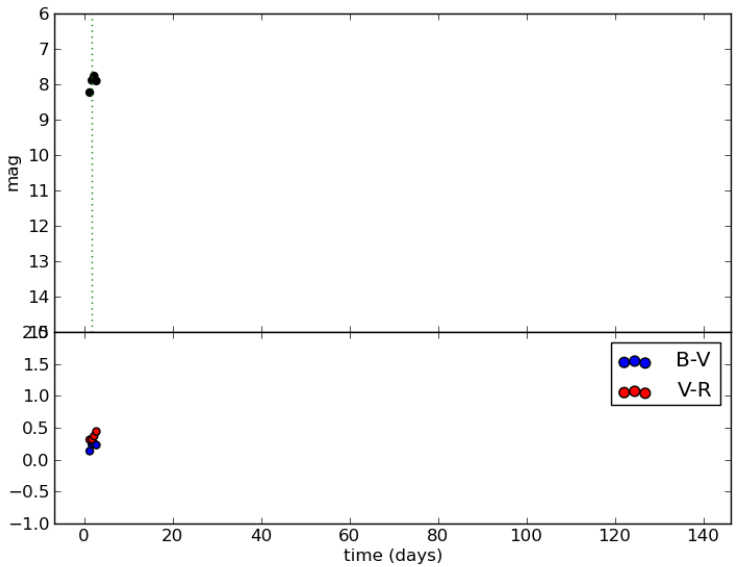


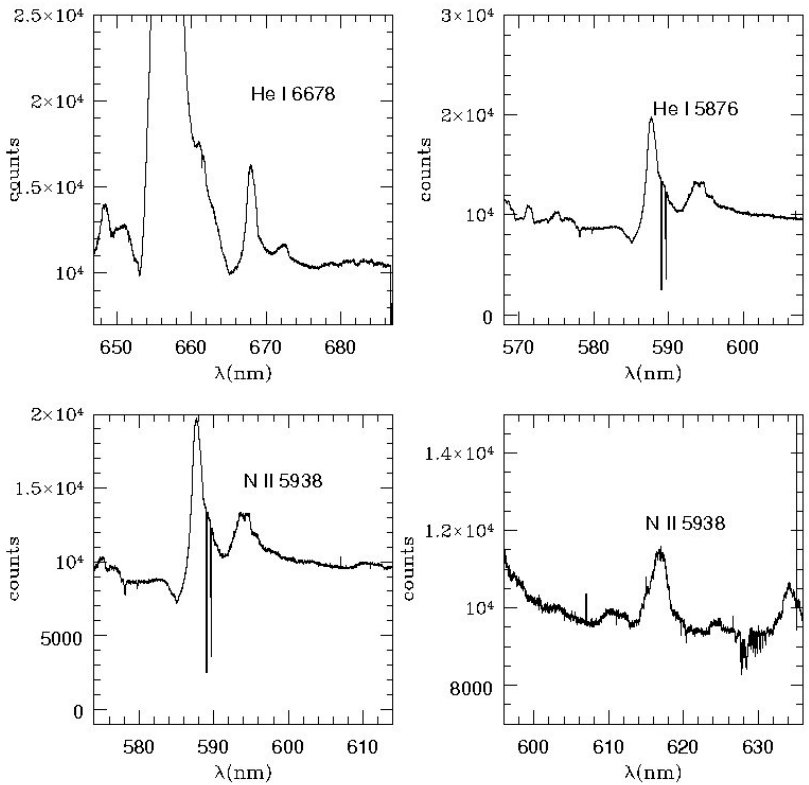
T Pyx 2011: 15th Apr



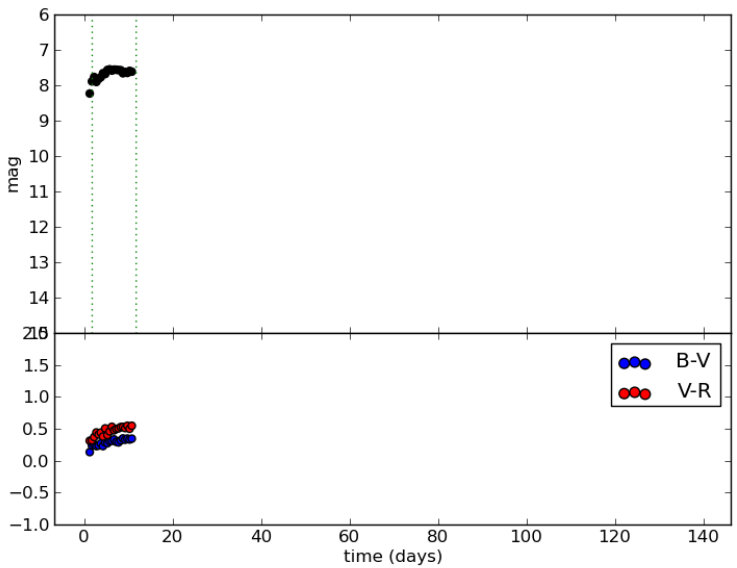


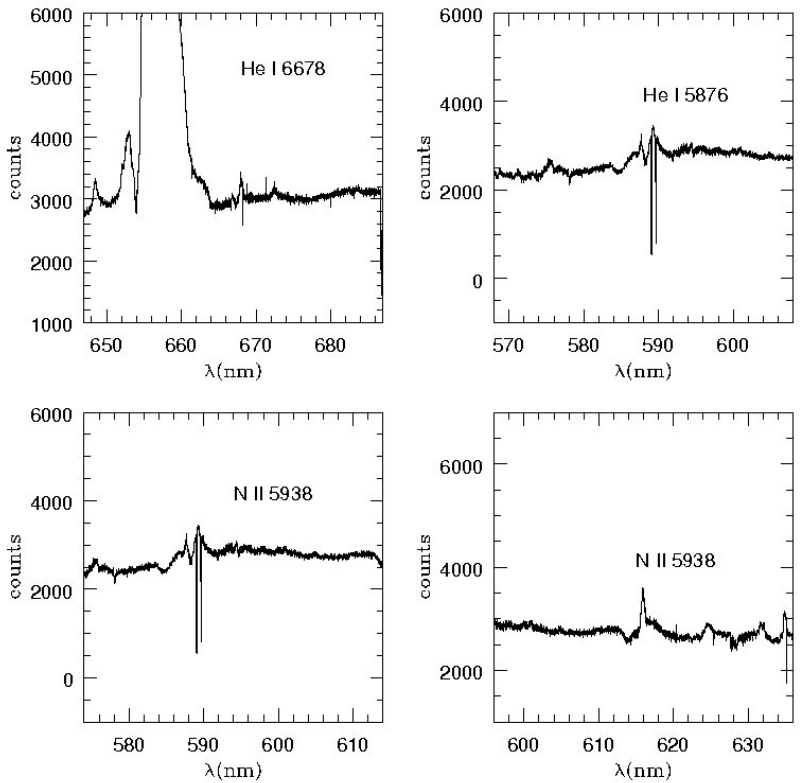
T Pyx 2011: 15th Apr



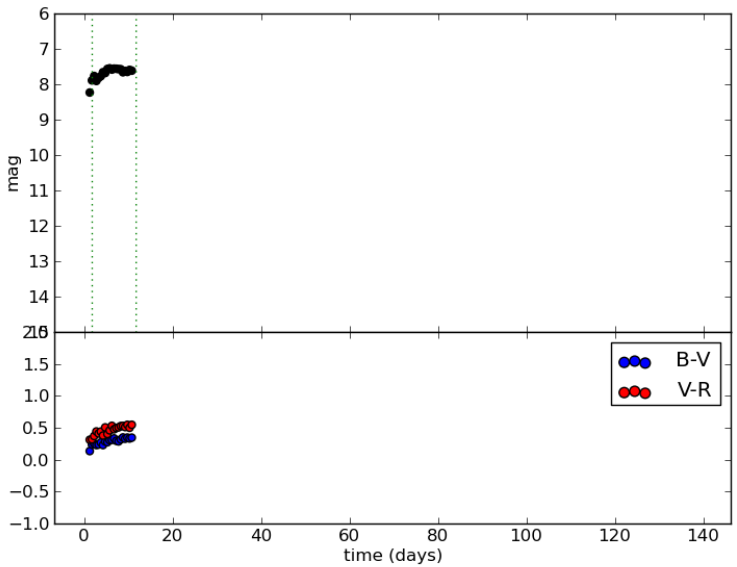


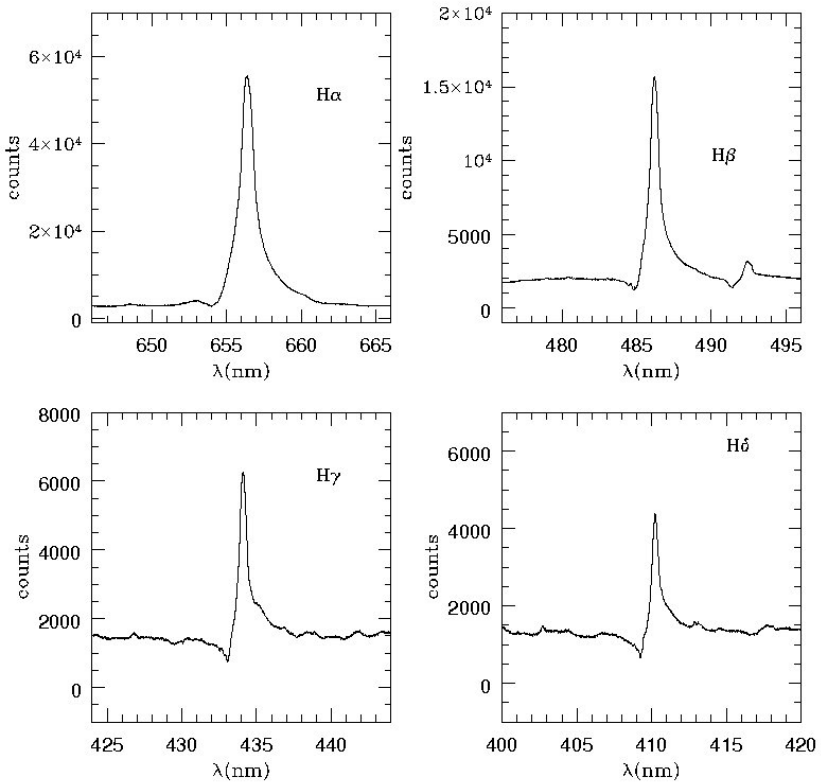
T Pyx 2011: 25th Apr



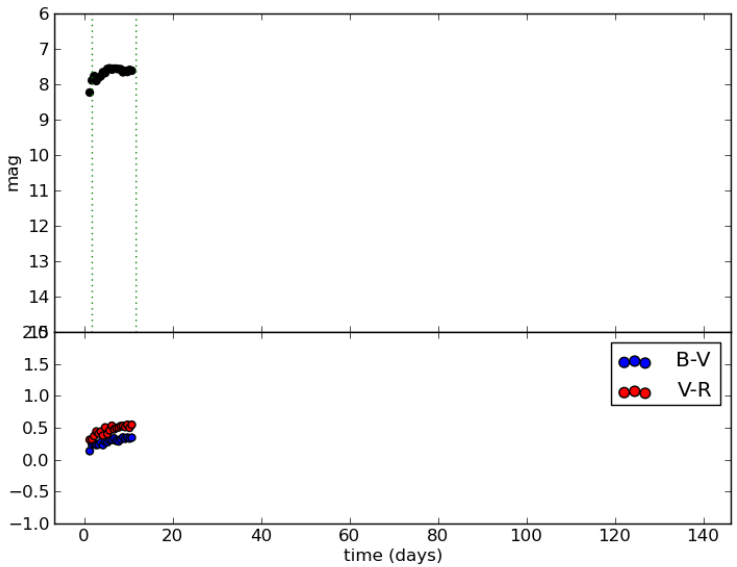


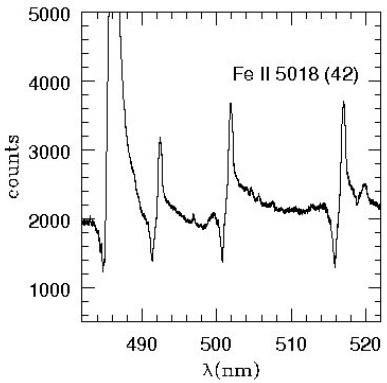
T Pyx 2011: 25th Apr

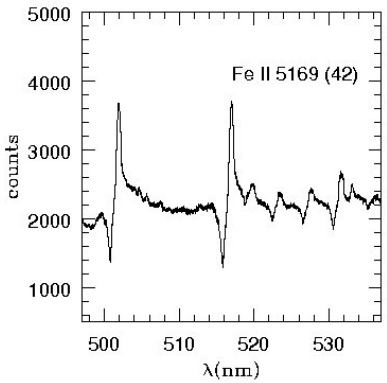




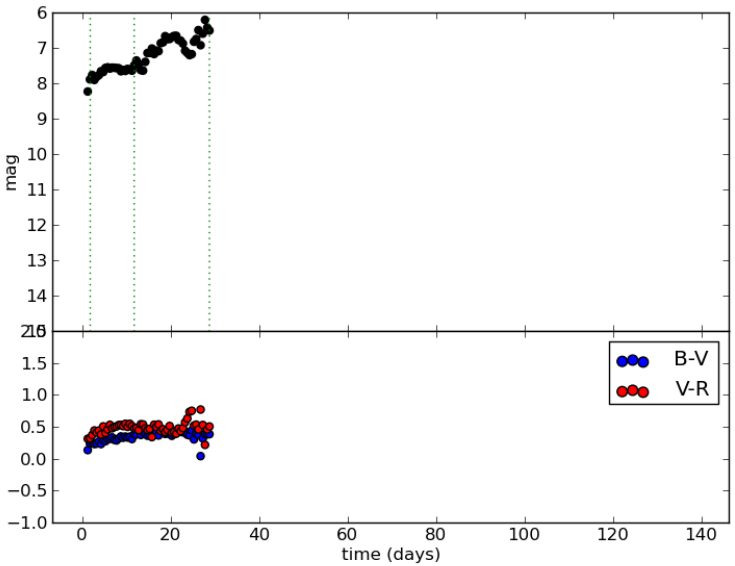
T Pyx 2011: 25th Apr

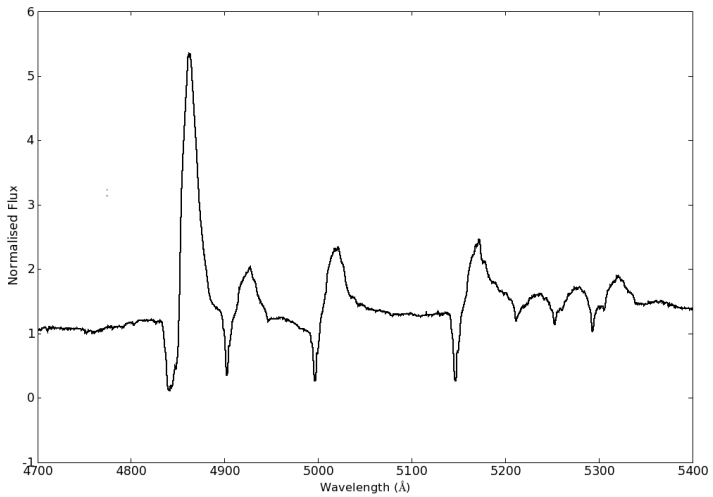






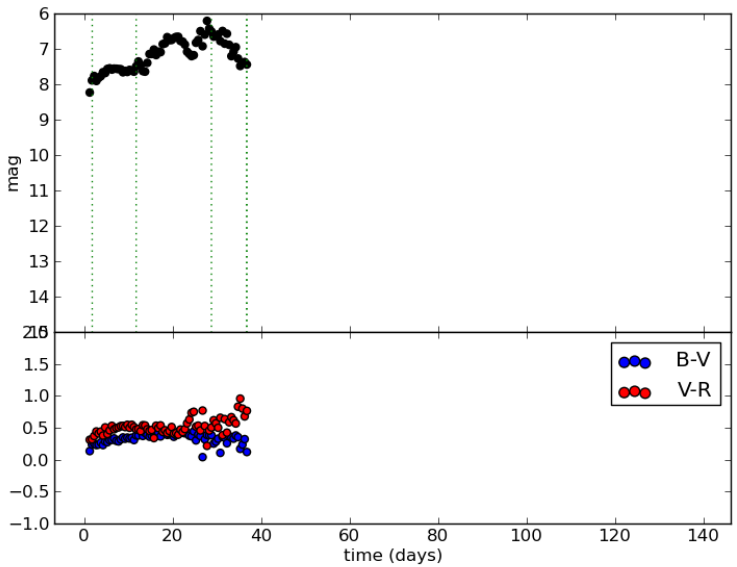
T Pyx 2011: 12th May

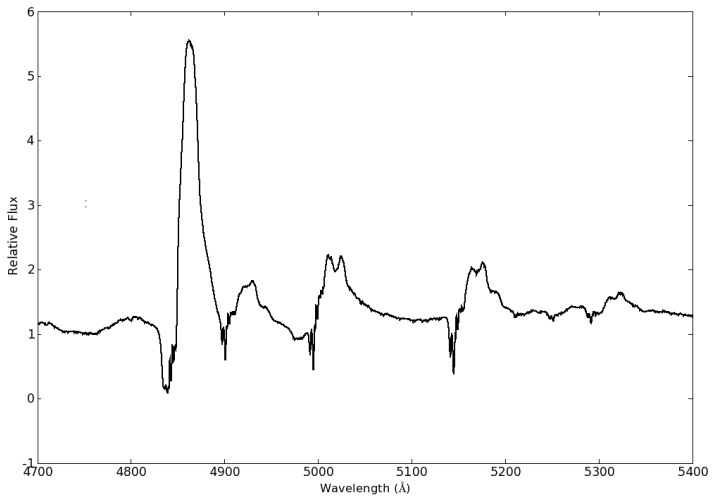




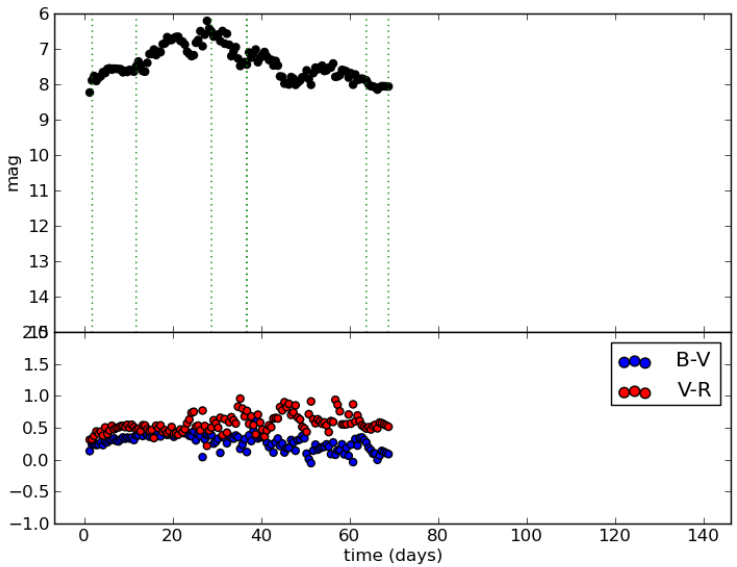
Maximum brightess. Bipolar expansion (Chesneau et al. 2011).

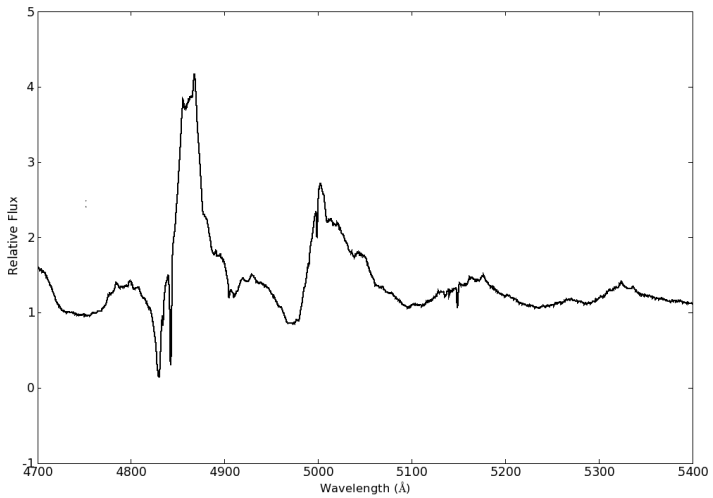
T Pyx 2011: 20th May



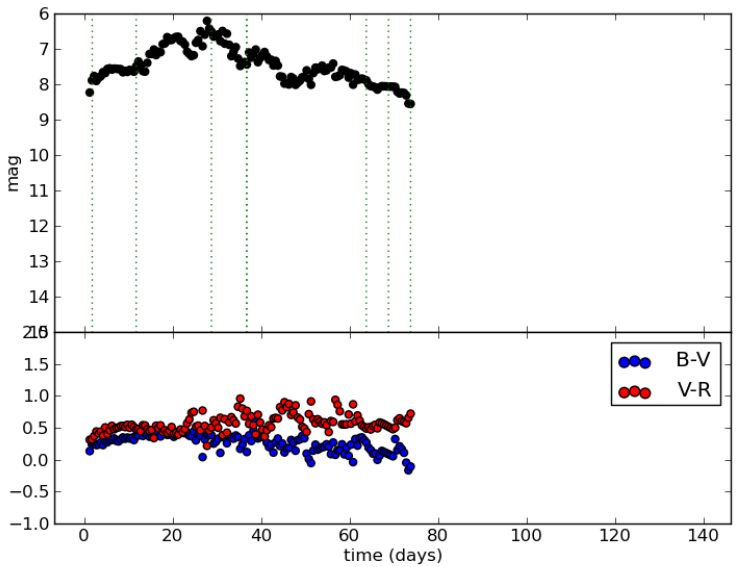


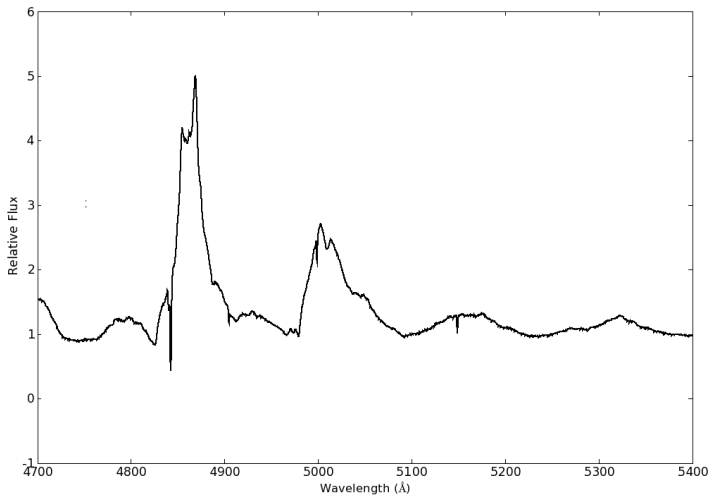
T Pyx 2011: 21st June



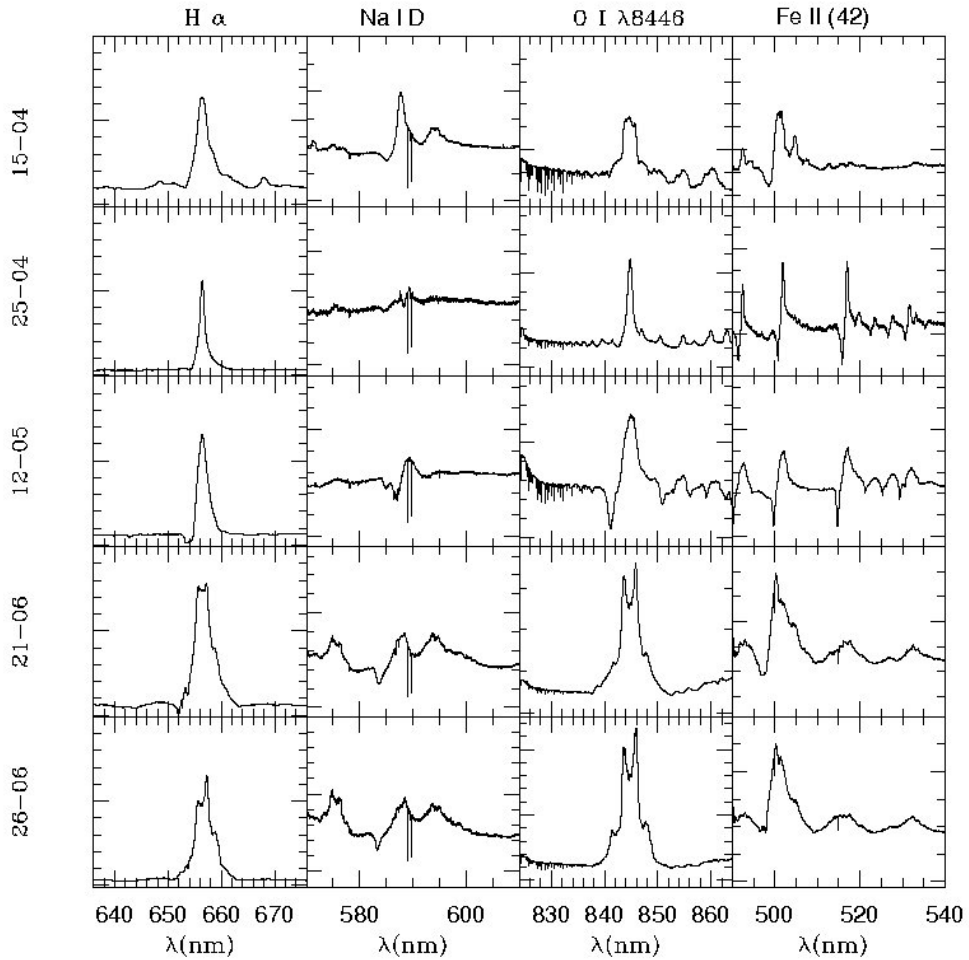


T Pyx 2011: 26th June

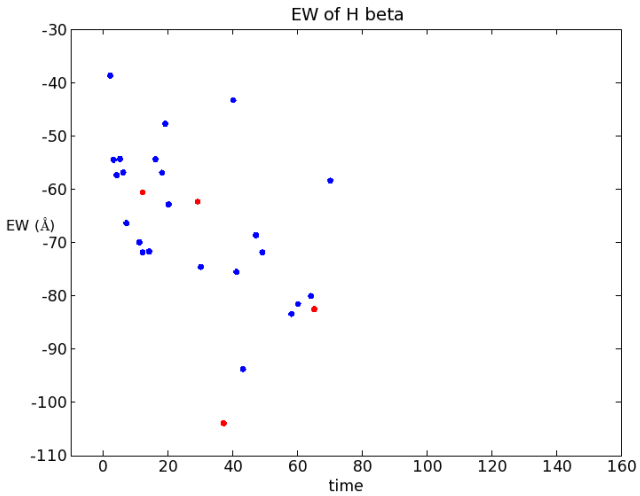


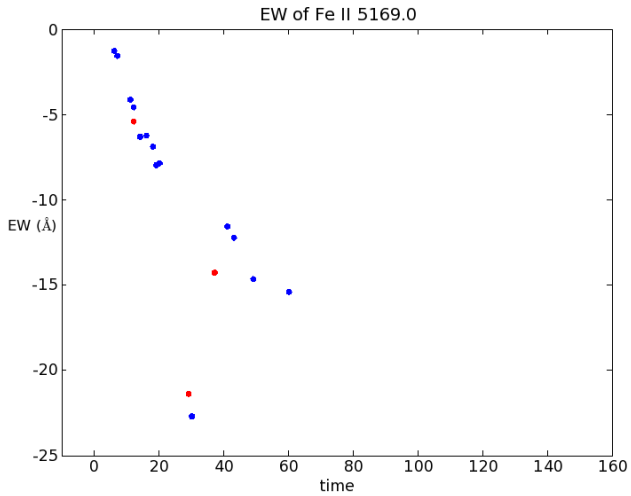


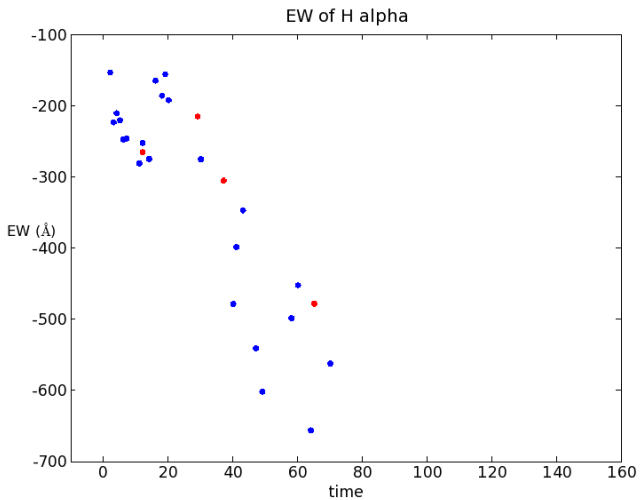
T Pyx 2011: Observation Summary

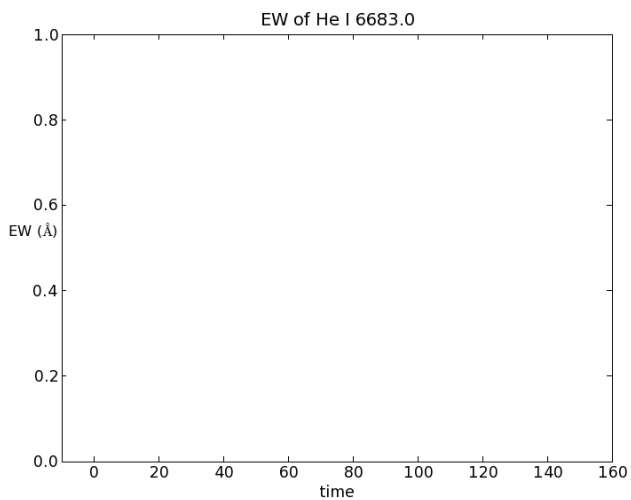


T Pyx 2011: Equivalent Widths









T Pyx 2011: the light curve

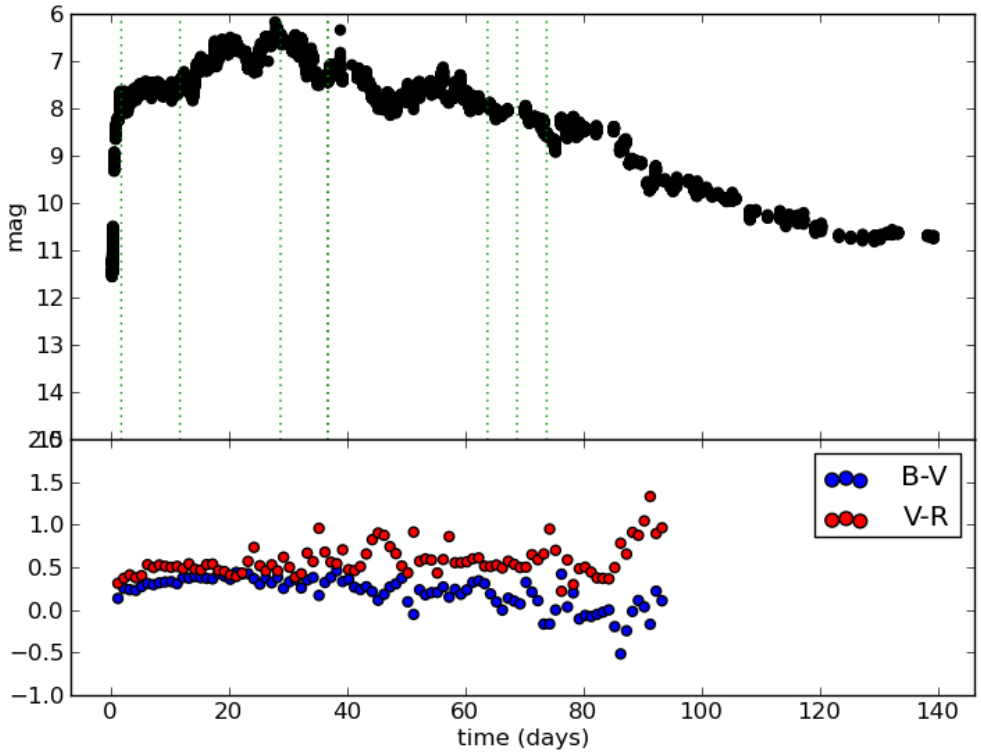
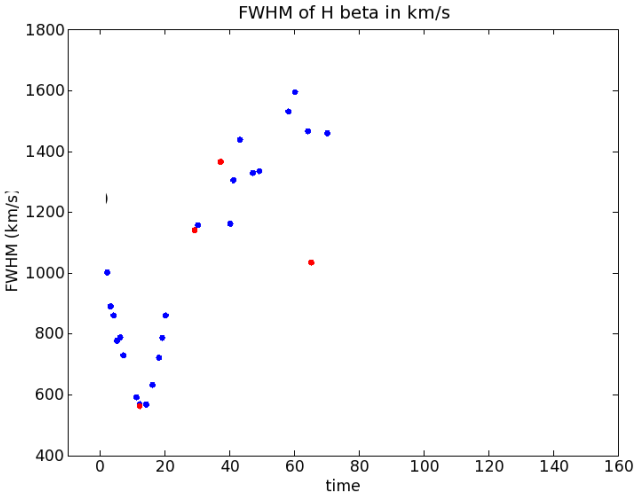
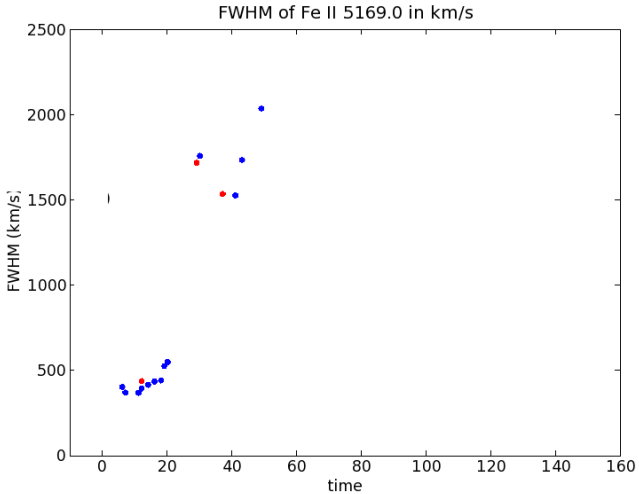
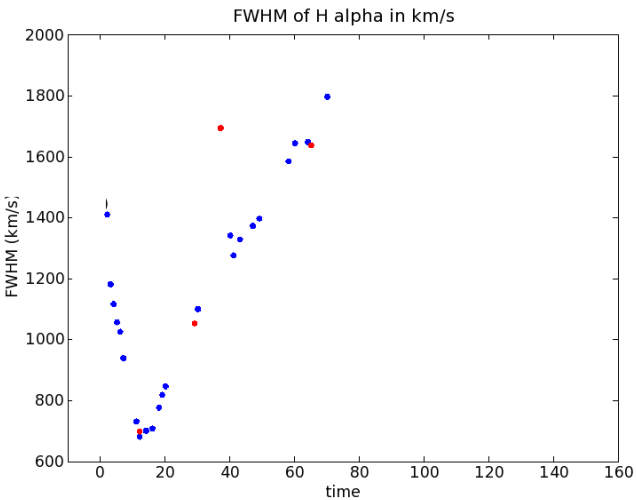


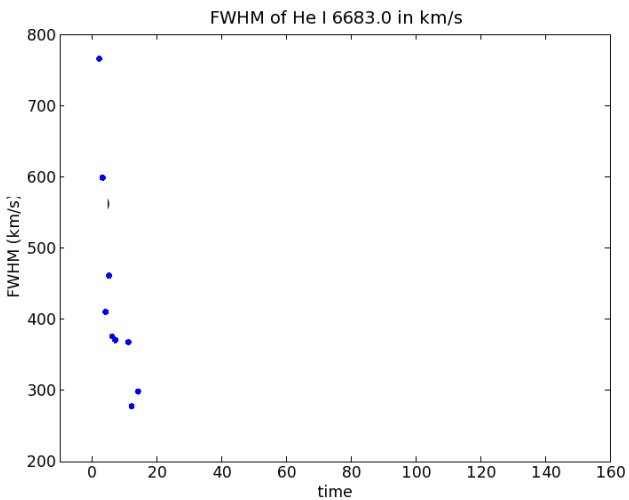
Figure: The AAVSO light curve.

T Pyx 2011: FWHM









T Pyx 2011: Summary

The slow behaviour of T Pyx has allowed a detailed study of the properties of a nova eruption.

T Pyx 2011: Summary

The slow behaviour of T Pyx has allowed a detailed study of the properties of a nova eruption.

T Pyx is a "super-hybrid" nova ("He/N" $\Rightarrow$ "Fe II" $\Rightarrow$ "He/N").

T Pyx 2011: Summary

The slow behaviour of T Pyx has allowed a detailed study of the properties of a nova eruption.

T Pyx is a "super-hybrid" nova ("He/N" $\Rightarrow$ "Fe II" $\Rightarrow$ "He/N").

Physics behind the evolution still uncertain. (at least, unclear to me)

T Pyx 2011: Summary

The slow behaviour of T Pyx has allowed a detailed study of the properties of a nova eruption.

T Pyx is a "super-hybrid" nova ("He/N" $\Rightarrow$ "Fe II" $\Rightarrow$ "He/N").

Physics behind the evolution still uncertain. (at least, unclear to me)

The mystery of the "recurrence time" not being a clock on its way to solution (?) ...

... do we know the whole story on the binary (i.e. mass of the components)?

T Pyx 2011: Summary

The slow behaviour of T Pyx has allowed a detailed study of the properties of a nova eruption.

T Pyx is a "super-hybrid" nova ("He/N" $\Rightarrow$ "Fe II" $\Rightarrow$ "He/N").

Physics behind the evolution still uncertain. (at least, unclear to me)

The mystery of the "recurrence time" not being a clock on its way to solution (?) ...

... do we know the whole story on the binary (i.e. mass of the components)?

Let's have some more T Pyx with Farung!