ASIAGO MEETING ON SYMBIOTIC STARS
Asiago, 10|11 July 2011

SCIENTIFIC PROGRAMME AND ABSTRACTS
The Local Organization Committee

Alessandro Siviero (chair)
Stefania Sacchetti
Ulisse Munari
Lina Tomasella
Sergio Dalle Ave
Paolo Ochner
Ettore Tamajo
Robertino Bau
Program

Sunday, July 10

Session 1  9:30 - 11:10  Chair: R. Corradi

Opening Talks

9:30 - 9:40  Welcome address by Prof. Piero Rafanelli (director of the Dept. of Astronomy of the University of Padova) (15 min)

9:40 - 9:55  Brief communications from the LOC

9:55 - 10:20  Joanna Mikolajewska  
Symbiotic stars: observations confront theory (20 + 5 min)

10:20 - 10:45  Ulisse Munari  
The Asiago Novae and Symbiotic Stars Collaboration (ANS) project (20 + 5 min)

10:45 - 11:10  Coffee Break

Session 2  11:10 - 12:25  Chair: U. Munari

Search for and surveys of Symbiotic Stars

11:10 - 11:35  Romano Corradi  
The search for symbiotic stars in IPHAS (20 + 5 min)

11:35 - 12:00  Augustin Skopal  
Multiwavelength SED as a tool in understanding outbursts of symbiotic binaries (20 + 5 min)

12:00 - 12:25  Alain Jorissen  
HERMES survey of binarity in evolved stars (20 + 5 min)

12:25 - 14:40  Lunch
Session 3 14:30 - 15:45 Chair: M. Kato

**Symbiotic Recurrent Novae**

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<tr>
<th>Time</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>14:40 - 15:05</td>
<td>Sumner Starrfield</td>
<td><em>New Studies of Recurrent/Symbiotic Novae</em></td>
<td>(20 + 5 min)</td>
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<tr>
<td>15:05 - 15:20</td>
<td>Jennifer L. Sokoloski</td>
<td></td>
<td>(10 + 5 min)</td>
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<tr>
<td>15:20 – 15:45</td>
<td>Izumi Hachisu</td>
<td><em>A Theoretical Light Curve Model of V407 Cygni</em></td>
<td>(20 + 5 min)</td>
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<td>15:45 – 16:15</td>
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<td><strong>Coffee Break</strong></td>
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Session 4 16:15 - 17:30 Chair: A. Skopal

**The 2010 outburst of V407 Cyg**

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<tr>
<td>16:15 - 16:40</td>
<td>Anna Tatarnikova</td>
<td><em>Spectroscopic observations of recurrent symbiotic nova V407 Cyg in 2001-2009</em></td>
<td>(20 + 5 min)</td>
</tr>
<tr>
<td>16:40 - 17:05</td>
<td>Koji Mukai</td>
<td><em>The X-ray evolution of the symbiotic star V407 Cygni during its 2010 outburst</em></td>
<td>(20 + 5 min)</td>
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<tr>
<td>17:05 - 17:30</td>
<td>Laura Chomiuk</td>
<td><em>EVLA Radio Monitoring of the Symbiotic Nova V407 Cyg</em></td>
<td>(20 + 5 min)</td>
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**Poster Session 17:30 - 17:55 Part 1**

(Poster presenters will have 5 minutes time to expose their research results. List of posters and authors is available at the bottom of the program.)

G.C. Anupama (5 min), R.J. Sepic (5 min), U. Munari (5 min), and S. Shugarov (5 min) (+5 min)
Monday, July 11

Session 5  9:30 - 10:45  Chair: J. Sokoloski

Mass transfer, accretion disks and outbursts (Part 1)

9:30 - 9:55  Shazrene Mohamed  
*Mass Transfer in Symbiotic Binaries*  
(20 + 5 min)

9:55 - 10:20  Zuzana Carikova  
*Formation of neutral disk-like zone around the active hot stars*  
(20 + 5 min)

10:20 - 10:45  Marina Orio  
*Symbiotics in the Local Group: supersoft X-ray sources*  
(20 + 5 min)

10:45 – 11:10  Coffee Break

Session 6  11:10 - 11:35  Chair: J. Mikolajewska

Mass transfer, accretion disks and outbursts (Part 2)

11:10 - 11:35  Alain Jorissen  
*The role of circumbinary disks in the evolution of Barium, post-AGB and symbiotic stars*  
(20 + 5 min)

Poster Session  11:35 - 12:05  Part 2

(Poster presenters will have 5 minutes time to expose their research results. List of posters and authors available at the bottom of the program.)

A. Siviero (5 min), A.T. Saygac (5 min),  
(+ 5 min)
G. Tovmassian (5 min), M. Sekeras (5 min)

12:05 - 14:30  Lunch
### Session 7  
**14:30 - 16:10**  
Chair: A. Jorissen

**Selected objects (Part 1)**

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<th>Time</th>
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<tr>
<td>14:30 - 14:55</td>
<td>Mariko Kato</td>
<td><em>Light curve model of PU Vul -- a very quiet explosion</em></td>
<td>(20 + 5 min)</td>
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<tr>
<td>14:55 - 15:20</td>
<td>Tomislav Jurkic</td>
<td><em>Modelling of Circumstellar Dust around RR Tel in Infrared</em></td>
<td>(20 + 5 min)</td>
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<tr>
<td>15:20 - 15:45</td>
<td>Edwin Kellogg</td>
<td><em>The R Aquarii Accretion Disk</em></td>
<td>(20 + 5 min)</td>
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<tr>
<td>15:45 - 16:10</td>
<td>Laurits Leedjärv</td>
<td><em>News from AG Draconis</em></td>
<td>(20 + 5 min)</td>
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**Coffee Break**

### Session 8  
**16:35 – 19:10**  
Chair: S. Starrfield

**Selected objects (Part 2)**

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<th>Time</th>
<th>Speaker</th>
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<tr>
<td>16:35 - 17:00</td>
<td>Steve Shore</td>
<td><em>The long-term spectroscopic mis-adventures of AG Dra</em></td>
<td>(20 + 5 min)</td>
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<tr>
<td>17:00 - 17:25</td>
<td>Nikolai Tomov</td>
<td><em>Mass ejection by the symbiotic prototype Z And during its 2006 outburst</em></td>
<td>(20 + 5 min)</td>
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<tr>
<td>17:25 - 17:50</td>
<td>Sergey Shugarov</td>
<td><em>Symbiotic Nova PU Vul -- 33 years of observations</em></td>
<td>(20 + 5 min)</td>
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<tr>
<td>17:50 - 18:15</td>
<td>Nadya Gorlova</td>
<td><em>Mass transfer in two post-AGB candidate binaries with dusty disks</em></td>
<td>(20 + 5 min)</td>
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<tr>
<td>18:15 - 18:40</td>
<td>Rodolfo Angeloni</td>
<td><em>Discovery of a high-collimated outflow from Sanduleak's star in the Large Magellanic Cloud</em></td>
<td>(20 +5 min)</td>
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**Open discussion and conclusions**

(30 min)
List of posters

G.C. Anupama, U.S. Kamath and J. Mikolajewska
Spectroscopic monitoring of BX Monocerotis since 2007

R. Jurdana-Šepić and U. Munari
Reconstruction of historic lightcurves of symbiotic stars from plate archives

U. Munari, A. Siviero, S. Dallaporta et al.
V471 Per (VV-8): long and short term variability in an object bridging SySS and PNe

S. Shugarov, A. Skopal, E. Kolotilov, G. Komissarova and P.Zemko
The unusual activity of CH Cyg in 2009-2011 yrs

A. Siviero, U. Munari and ANS Collaboration group
BF Cyg during its current outburst

A. T. Saygac and S. Alis
Telescope and Researcher Potential of Turkey for Collaboration in CV Studies

M. Sekeras
Contribution of the electron-scattering process to the broad wings of emission lines

V. Chavushyan, L. Erastova, G. Tovmassian, J. Torre-Alba, C. Chavarria, M. Moreno and J.R. Valdez
A new Symbiotic Star (SBS 0802+529) from the Second Byurakan Survey

On the Symbiotic X-ray Binary nature of star CGCS 5926
Session 1

Opening talks
Brief communication from Alessandro Siviero
(chairman of the meeting)

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Welcome address by prof. Piero Rafanelli
(director of the Dept. of Astronomy of the University of Padova)

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Symbiotic Stars: observations confront theory

Speaker: Joanna Mikolajewska
N. Copernicus Astronomical Center

Abstract

Symbiotic stars are interacting binaries with the longest orbital periods and so the largest component separations, and their study is essential to understand the evolution and interaction of detached and semi-detached binaries. In this presentation I will present and discuss some recent observational results which may have important implications for our understanding of late phases of binary evolution. In particular, we will concentrate on orbital parameter distribution, position in the mass-luminosity plane, and evolutionary status of known symbiotic binaries.
The Asiago Novae and Symbiotic Stars Collaboration (ANS) project

Speaker: Ulisse Munari
INAF – Osservatorio Astronomico di Padova

Abstract

The ANS Collaboration (Asiago Novae and Symbiotic stars) operates since 2005 several robotic or remotely accessed telescopes over northern Italy, the majority (30 to 50 cm) devoted to UBVRcIC CCD photometry and a few more (60 to 80 cm) to single dispersion or Echelle high resolution spectroscopy. In addition to eclipsing binaries and targets of opportunity like nova outbursts, micro-lensing events and optical transients, the majority of the observing time is currently invested in the long term monitoring of symbiotic stars (aiming to cover several consecutive orbital cycles). I will review ANS operation mode, data acquisition and treatment procedures, and present some of the results as a guideline to the typical data harvest.

Notes
Session 2

Search for and surveys of Symbiotic Stars
The search for Symbiotic Stars in IPHAS

Speaker: Romano L.M. Corradi  
Instituto de Astrofísica de Canarias

Abstract

I will report on the status and perspectives of our search for symbiotic stars in the Milky Way. The search takes advantage of our (completed) Hα survey in the Northern hemisphere (IPHAS), its (forthcoming) extension in the South (VPHAS+), and follow-up spectroscopic and photometric observations at different telescopes worldwide.
Multiwavelength SED as a tool in understanding outbursts of symbiotic binaries

Speaker: Augustin Skopal  
Astronomical Institute, Slovak Academy of Sciences

Abstract

I will introduce a method of disentangling the composite spectrum of symbiotic binaries from the super-soft X-ray to near-IR, and by this way determine physical parameters of its individual components of radiation. Applying the method to different objects at different stages of activity allow us to identify basic physical processes responsible for the observed changes in the spectrum, and thus to study ionization and geometrical structure of the hot active objects.
HERMES survey of binarity in evolved star

Speaker: Alain Jorissen
Institut d'astronomie - Université libre de Bruxelles

Abstract

We report on our radial velocity monitoring project of a wide range of evolved stars where binarity was proposed to explain some of their peculiarities. Our spectrograph HERMES is a new optical echelle spectrograph mounted on the 1.2m Mercator telescope on La Palma, built by a consortium of Belgian Institutes (KULeuven, ULB, Royal Observatory) with contributions from the Geneva Observatory and Landessternwarte Tautenburg. By combining high S/N single observations with low S/N time-series, we aim at quantifying the orbital and chemical characteristics of every distinct subgroup. The final goal is to gain insight in the diverse binary interaction processes relevant at late stages of stellar evolution. We discuss our project, the unique capabilities of HERMES, and present the first results of our program, with special emphasis on symbiotics involving S and C stars, as well as D' symbiotics.
Session 3

Symbiotic Recurrent Novae
New Studies of Recurrent/Symbiotic Novae

Speaker: Sumner Starrfield  
Arizona State University

Abstract

Notes
Last minute talk in substitution of Margarita Hernanz

Speaker: Jennifer L. Sokoloski  
Columbia Astrophysics Lab

Abstract

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A Theoretical Light Curve Model of V497 Cygni

Speaker: Izumi Hachisu  
University of Tokyo

Abstract

V407 Cyg is a symbiotic star consisting of a massive white dwarf and a Mira (red giant). Its classical nova outburst was discovered on March 10.8 UT, 2010. We have analyzed the light curve of V407 Cyg based on our universal decline law and estimated the mass of the white dwarf. Although it is suggested that its light curve is very similar to the recurrent nova RS Oph, our estimated mass is about 1.2 solar masses, so V407 Cyg may not be a progenitor of Type Ia supernova.
Session 4

The 2010 outburst of V407 Cyg
Spectroscopic observations of recurrent symbiotic nova V407 Cyg in 2001-2009

Authors: V. F. Esipov, T.N. Tarasova, V.I. Shenavrin, A. M. Tatarnikov, A. A. Tatarnikova

Speaker: Anna Tatarnikova  
Sternberg Astronomical Institute, Russia

Abstract

We analyze the results of our spectroscopic monitoring of V407 Cyg in 2001-2009. The slow decline in optical brightness connected with the evolution of Z And-type outburst (maximum in 1998) was observed in 2001-2003. The system returned to quiescence in 2004 and its spectrum was nearly the same as in 1994. We estimated the hot component's temperature from equivalent width of HeII, 4686 Å to be ~ 63000 °K (if the electron temperature of the nebula was 10000 °K). In 2006-2007 there was no clear evidence of the hot component in the spectra. The equivalent width of Hα dropped to 5 Å (in 2007). This passive state was similar to previous passive states observed in 2006-2007 and in 1991. The last our spectrum was obtained in September 2009 near Mira's pulsation maximum (very bright nova-like outburst was discovered five months later in March 2010). On this spectrum Mira's radiation was essentially weaker than in previous maxima, the blue part of the spectrum was similar to the spectrum obtained in 1993. There were no any HeII lines on the spectra obtained in 2008-2009.

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The X-ray evolution of the symbiotic star V407 Cygni during its 2010 outburst

Authors: K. Mukai, T. Nelson, D. Donato, J. Sokoloski, L. Chomiuk

Speaker: Koji Mukai
    NASA/GSFC/CRESST
    UMBC

Abstract

The 2010 nova outburst of V407 Cygni is unusual in that it happened on a D type symbiotic, and that it produced a detectable level of gamma-ray emission. Subsequently, we observed V407 Cygni in X-rays using Swift and Suzaku. We present the X-ray evolution of V407 Cyg between day 3.8 and 142, in the context of a model jointly developed with Chomiuk et al. We also present a detailed analysis of the Suzaku data taken on day 30, at maximum X-ray flux. At this time, V407 Cyg had a two-component X-ray spectrum consisting of an absorbed hard component from the forward shock, and a second, less absorbed component whose origin remains a mystery.  

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EVLA Radio Monitoring of the Symbiotic Nova V407 Cyg


Speaker: Laura Chomiuk

Harvard-Smithsonian CfA/NRAO

Abstract

Our on-going EVLA monitoring of V407 Cyg's 2010 outburst provides some of the best temporal and spectral coverage (1--50 GHz) ever acquired for a nova in the radio. Here, we describe our observations and show that they are not consistent with canonical models for novae, which ascribe the radio emission to thermal bremsstrahlung from an expanding spherically symmetric shock. We explore possible explanations for V407 Cyg's unusual radio properties, developing them in cooperation with Nelson et al.'s models of the X-ray emission, and taking into account the strong interaction between the ejecta and the giant companion's wind.

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Poster Session

Part 1
Spectroscopic monitoring of BX Monocerotis since 2007

Authors: G.C. Anupama, U.S. Kamath, J. Mikolajewska

Speaker: G.C. Anupama

Abstract: We present the results of spectroscopic monitoring of the symbiotic nova BX Monocerotis since 2007, covering different phases of the ~700d orbital period, including the primary eclipse phase.

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Construction of historic lightcurves of symbiotic stars from archive plates

Authors: R. Jurdana-Šepić and Ulisse Munari

Speaker: Rajka Jurdana-Šepić

Abstract:
V471 Per (VV-8): long and short term variability in an object bridging SySS and PNe

Authors: U. Munari, A. Siviero, S. Dallaporta et al.

Speaker: Ulisse Munari

Abstract: Decades of photometry and spectroscopy of VV8 (= M 1-2, V471 Per) have failed to catch the object departing from the very stable conditions it always displays. We have carried out long term, high accuracy BVRcIc photometry (total error budgets < 0.007 mag) over the period 2005-2011, and both high and low resolution spectroscopy from 1985 to 2011, looking for changes and periodicities that could provide a clue to its nature: a symbiotic star or a planetary nebula with a binary nucleus. Three periodicities (16.8 yr, 6.431 day and 1.185 day) have been firmly detected, and they are compared with the Abell-35 type orbital modulation observed in planetary nebulae with a binary nucleus.

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The unusual activity of CH Cyg in 2009-2011 yrs

Authors: S. Shugarov, A. Skopal, E. Kolotilov, G. Komissarova, P.Zemko

Speaker: Sergey Shugarov

Abstract: We analyzed the photometrical UBVRcIc and two spectral observations of CH Cyg. The comparison of the optical and X-ray observations showed that there was a delay between optical and X-ray flashes. After strong activity in 2009 the brightness at U-band declined up to the 2 magnitude and the flashes finished.

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Session 5

Mass transfer, accretion disks and outbursts
(Part 1)
Mass Transfer in Symbiotic Binaries

Authors: S. Mohamed and Ph. Podsiadlowski

Speaker: Shazrene Mohamed  
*University of Bonn, Argelander Institute for Astronomie*

Abstract

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Formation of neutral disk-like zone around the active hot stars

Authors: Z. Carikova, A. Skopal

Speaker: Zuzana Carikova
Astronomical Institute, Slovak Academy of Sciences

Abstract

During active phases the ionization structure in symbiotic binaries changes significantly. In the systems with high orbital inclination we observe a two-temperature-type of the UV spectrum. The cooler component is produced by a relatively warm stellar source, while the hotter one is represented by the highly ionized emission lines and a strong nebular continuum. This situation suggests the presence of a neutral disk-like structure surrounding the accretor in the orbital plane and hot emitting regions located above/below the disk. A rapid creation of such the ionization structure during the first days/weeks of outbursts is connected with the enhanced hot star wind. Due to a fast rotation of the accretor, the wind particles are compressed more to the equatorial plane, where create a neutral zone in the form of a flared disk. We tested the latter by applying the wind compression model. The presence of such disks is transient, being connected with the active phases of symbiotic binaries.

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Symbiotics in the Local Group: supersoft X-ray sources

Speaker: Marina Orio
INAF – Osservatorio Astronomico di Padova
University of Wisconsin

Abstract

We will present X-ray observations of a handful of "X-ray supersoft" luminous symbiotics in the Local Group, and especially the monitoring of SMC 3. We argue that some of these objects do not undergo a nova explosion but proceed towards increasing the WD mass towards the Chandrasekhar value.
Session 6

Mass transfer, accretion disks and outbursts
(Part 2)
The role of circumbinary disks in the evolution of Barium, post-AGB and symbiotic stars

Authors: A. Jorissen, T. Dermine, R. Izzard, L. Siess

Speaker: Alain Jorissen  
Institut d'astronomie - Université libre de Bruxelles

Abstract

We show that circumbinary disks have dynamical effects on the orbital evolution of binaries which are of key importance to correctly reproduce the distribution of the orbital elements of barium, post-AGB and symbiotic binaries.
Poster Session

Part 2
On the Symbiotic X-ray Binary nature of star CGCS 5926

Speaker: N. Masetti (not present)

Abstract: We here report on multiwavelength (X-ray to optical) followup observations of carbon star CGCS 5926, motivated by the fact that it is positionally coincident with a faint X-ray source of the ROSAT catalog, thus suggesting a possible symbiotic X-ray binary (SyXB) nature for it. Our optical spectroscopy confirms that this is a carbon star of type C(6,2). This allows us to infer a distance of ~5 kpc for CGCS 5926. BVRIC photometry of the star shows variability of ~0.3 mag with a periodicity of 151 days, which we interpret as due to radial pulsations of CGCS 5926. The source is not detected with the Swift satellite in X-rays down to a 0.3-10 keV luminosity of ~3·10^{32} erg s^{-1}. This nondetection is apparently in contrast with the ROSAT data; however, the present information does not rule out that CGCS 5926 can be a SyXB. This will be settled by more sensitive observations at high energies.

BF Cyg during its current outburst

Authors: A. Siviero, U. Munari and ANS Collaboration

Speaker: Alessandro Siviero

Università di Padova, dip. Astronomia

Abstract: The symbiotic system BF Cyg, one of the most studied objects of this interacting binaries class, entered in 2006 a major outburst still in progress at the time of this conference. This poster presents the main results from our tight spectroscopic and photometric monitoring extending over the whole current outburst.
Telescope and Researcher Potential of Turkey for Collaboration in CV Studies

Authors: A.Talat Saygac, S. Alis

Speaker: A.Talat Saygac
   Department of Astronomy and Space Sciences, Istanbul University

Abstract:

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A new Symbiotic Star (SBS 0802+529) from the Second Byurakan Survey

Authors: V. Chavushyan, L. Erastova, G. Tovmassian, J. Torre-Alba, C. Chavarria, M. Moreno, J.R. Valdez

Speaker: Gagik Tovmassian
   IA UNAM

Abstract:

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Contribution of the electron-scattering process to the broad wings of emission lines

Authors: M. Sekeras, A. Skopal

Speaker: Matej Sekeras
Astronomical Institute, Tatranska Lomnica, Slovakia

Abstract: We modeled the extended wings of the OVI 1032,1038 Å resonance lines in the archival FUSE spectra of Z And, AG Dra and V1016 Cyg by the electron-scattering process. By this way we determined the electron temperature and the electron-scattering optical depth of the layer of electrons, throughout which the line photons are transferred in direction of the observer. Comparing the model parameters with the star's brightness in U, we derived an empirical relationship between the emission measure of the symbiotic nebula and the electron optical depth. This relationship allows us to estimate a contribution due to the Thomson scattering also in these lines, which are created within a more extended low density parts of the nebula. For example, subtracting the electron scattering contribution from the H-alpha line profile leads to a reduction in the mass loss rate by 10-15 percent.

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Session 7

Selected objects
(Part 1)
Light curve model of PU Vul -- a very quiet explosion

Speaker: Mariko Kato
Keio University

Abstract

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Modelling of Circumstellar Dust around RR Tel in Infrared

Authors: Tomislav Jurkic, Dubravka Kotnik-Karuza

Speaker: Tomislav Jurkic
Department of Physics, University of Rijeka

Abstract

We present a model of the circumstellar dust around symbiotic mira RR Tel obtained by modelling the near-infrared JHKL magnitudes and ISO spectra. In order to follow the evolution of infrared colours in time, the published JHKL magnitudes were corrected by removing the Mira pulsations. The RR Tel light curves show three obscuration events in the near-IR. Using the simultaneously available JHKL magnitudes and ISO spectra in three different epochs, we obtained SEDs in the near- and the mid-IR spectral region (1-20 microns) in periods with and without obscuration. The pulsation periods determined from the JHKL photometry inside and outside obscuration intervals show no significant difference. The DUSTY numerical code was used to solve the radiative transfer and to determine the circumstellar dust properties of the inner dust regions around the mira, assuming spherical dust temperature distribution in its close neighbourhood. Dust temperature, grain size, density distribution, mass loss, terminal wind velocity and optical depth during intervals with and without obscuration have been obtained. Both JHKL and ISO observations during the obscuration period can be reproduced with the spherical dust envelope, while ISO spectra outside the obscuration show different behaviour. Dynamical behaviour of the circumstellar dust was obtained by modelling the JHKL magnitudes observed during the span of more than 30 years.

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The R Aquarii Accretion Disk

Authors: E. Kellogg, J. Nichols, J., DePasquale

Speaker: Edwin Kellogg
SAO

Abstract

R Aquarii is a symbiotic binary with jets and outer thermal lobes. It is known to contain a Mira red giant and its companion is generally believed to be a white dwarf. Here, we analyze the X-ray spectrum of the central binary. We observe several components: a soft thermal source, $T \sim 5 \times 10^6 \, \text{K}$, a hard heavily obscured thermal source, $T \sim 1.4 \times 10^8 \, \text{K}$, and apparently a complex series of fluorescence lines dominated by Fe K$\alpha$, but including a series of lines from even Z elements down to C. We compare relative intensities with models of collisional and photo excitation in cool gas. The shape of the Fe K$\alpha$ line may give information on the compactness of the companion.

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News from AG Draconis

Authors: L. Leedjärv, M. Burmeister

Speaker: Laurits Leedjärv
Tartu Observatory

Abstract

AG Dra is a well-studied symbiotic star, but it continues to surprise astronomers. There was a major outburst in 2006-2008, during which the Raman scattered O VI line at 6825 Å practically disappeared. After the outburst, the star entered into an anomalously deep minimum, with H I, He II 4686 Å and O VI 6825 Å emission lines significantly weaker than ever during the observational period from 1997 to 2011. We try to give some preliminary interpretation of the spectroscopic variability of AG Dra.
Session 8

Selected objects
(Part 2)
The long-term spectroscopic mis-adventures of AG Dra

Authors:

Speaker: Steve Shore
Università di Pisa, INAF/Pisa

Abstract

Notes
Mass ejection by the symbiotic prototype Z And during its 2006 outburst

Authors: N. Tomov, M. Tomova

Speaker: Nikolai Tomov  
Institute of Astronomy and National Astronomical Observatory, Bulgaria

Abstract

The optical line spectrum of the symbiotic binary Z And during its 2006 major outburst is studied. Various indications of stellar wind by the compact object in this system and of collimated outflow as well are considered. The spectral behaviour is interpreted in the framework of a model proposed in previous work. Estimations of the mass-loss rate of the compact object based on different types of lines are presented.

Notes
Symbiotic Nova PU Vul - 33 years of observations

Authors: S. Yu. Shugarov, D. Chochol, E. A. Kolotilov

Speaker: Sergey Shugarov  
Sternberg Astron. Institute and Astron, Ustav Slovak Academy

Abstract

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Mass transfer in two post-AGB candidate binaries with dusty disks

Speaker: Nadya Gorlova
KU Leuven

Abstract

We present a time series of high-resolution spectra for two poorly studied post-AGB candidate systems surrounded by dusty disks. The stars show radial velocity variations with periods of 130-140 days, which we attribute to the orbital motion around an undetected companion. The striking feature in both stars is the Hα profile that alternates between a double-emission and a P Cyg shapes with the radial velocity phase. We discuss a hypotheses proposed in the literature for semi-detached binaries and the Red Rectangle nebula about an ongoing mass transfer from the visible star onto the companion, resulting in the accretion disk with jets around the latter.

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Discovery of a high-collimated outflow from Sanduleak's star in the Large Magellanic Cloud

Authors: R. Angeloni, F. Di Mille, J. Bland-Hawthorn, D. Osip

Speaker: Rodolfo Angeloni

Departamento de Astronomía y Astrofísica, Pontificia Universidad Católica de Chile

Abstract

In the framework of a systematic observational campaign aimed at characterizing the symbiotic phenomenon in the Magellanic Clouds, we report on the discovery of a jet-like feature around Sanduleak's star, an intriguing object controversially classified as symbiotic. Based on observations made with the Magellan Telescopes at the Las Campanas Observatory, Chile.

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