

HIGHLIGHTS OF THE FIFTH WORKSHOP ON CATAclySMIC VARIABLES

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What started five years ago to be an informal gathering between astronomers working with cataclysmic variables at the University of Texas and the University of Illinois has developed into one of the most informative, inspiring, and friendly series of astronomical meetings I have attended.

This year, the Fifth Workshop of Cataclysmic Variables was held at the University of Texas between March 24 and 26. Three full days were devoted to discussion and dissemination of information on cataclysmic variables. One may wonder if there is that much to discuss on these variables, but there is, and much more. Papers given covered areas of spectroscopy and high speed photometry of cataclysmic variables at minimum and maximum light, rapid oscillations in cataclysmic variables, recent observations with spacecraft - International Ultraviolet Explorer (IUE) and High Energy Astronomical Observatory (HEAO-1 and HEAO-2) - and their correlation with the optical data, spectroscopic observations of classical novae, theories on novae eruptions, initial mass functions of white dwarfs and cataclysmic variables, and model atmospheres for classical novae.

The workshop was really a rewarding experience for me. Not only did I become informed of the most recent research in the different areas of cataclysmic variables, I also heard almost every observational paper refer to AAVSO data!

France Cordova talked about the HEAO-2 survey on cataclysmic variables, and for almost every star observed, she used AAVSO data. Dr. G. Fabiano and her colleagues, observing SS Cyg and U Gem with HEAO-2, used AAVSO data for their correlation. Dr. Stiening, who is a colleague of Dr. Hildebrand, and his group presented a very interesting paper on changing oscillations, on the order of seconds, in SS Cyg. Here again, he showed the AAVSO light curve superimposed on his observations. Many of you contributed data to their observing runs and many of you worked very closely with him. I extend to you his personal thanks for all the help you have given him.

Dr. H. Bond had an interesting set of spectroscopic observations on the U Gem star, AY Lyrae. Although they were only a few days apart, the spectra looked entirely different. When he correlated his spectroscopic observations, with the optical data from the AAVSO, he discovered that the spectra with deep absorption lines correlated to the time when the star was brightening to maximum. At maximum, the spectra became featureless, and as the star started to fade, the emission lines appeared. These important sets of data may help to explain the changes in the density, viscosity and the temperature of the disk around the white dwarf of these close binary systems. Dr. Bond is one of the few astronomers who was lucky enough to catch a U Gem star going up, and to follow its outburst. He mentioned that the AAVSO observations were crucial in interpreting the interesting spectroscopic data.

Extensive spectroscopic observations are being carried on at the University of Texas and Dominion Astrophysical Observatory to determine the orbital period and the mass ratios of the blue and red components of SS Cyg.

There was also quite a bit of discussion on AM Herculis type stars. These are short-period interacting binaries with strong linear polarization, indicating strong magnetic fields, and they are generally x-ray sources. They have lengthy "up" and "down" states in their light curves. Of these types of stars we have only AM Herculis in our program, but shortly we will be adding VV Puppis and AN Ursae Majoris to our program. Astronomers are particularly interested in being alerted when these stars either go down or up, that is, when they change the state of their light curve.

France Cordova communicated an interesting finding of HEAO-2 on the U Gem star, SU Ursae Majoris. An x-ray halo was detected around SU Ursae Majoris. This halo may be an evidence of a nova-like outburst that took place about 500 years ago. This particular news was exciting because this is the first case where such a halo has been detected from a U Gem star.

Another U Gem star, HT Cassiopeiae, was a topic of significant discussion. The interval between outbursts is given in the GCVS to be 30 days, but we have only three outbursts recorded since 1976. Either the outbursts are very short and we are missing them or the outbursts are not as frequent. HT Cas is a very interesting U Gem star, in that it has deep eclipses with amplitudes of about  $2^m.5$ . The star is  $17^m$  at minimum and  $12^m.5$  at maximum. Eclipses have been observed at maximum as well as at minimum. The thing that is very intriguing is that most eclipses of cataclysmic variables occur when the disk around the primary is eclipsed. In this case, there is good evidence that what is being observed is the eclipse of the white dwarf. HT Cas is the only northern U Gem cataclysmic variable where this phenomenon can be observed.

Attending the workshop on cataclysmic variables was certainly a very satisfying experience both professionally and as a representative of the AAVSO. After the papers I gave, the Chairman of the Paper Session, Dr. Starrfield, asked the audience for a round of applause for the AAVSO and their observers' contributions. He said, "We owe a great debt to your observers. I hope you will convey it to them." At this time, I bring to you their thanks and their appreciation and I ask you to continue with your observations as enthusiastically as you have been doing.