

**ABSTRACTS OF PAPERS PRESENTED AT THE 90TH ANNUAL  
MEETING OF THE AAVSO, NOVEMBER 1–4, 2001,  
SOMERVILLE, MASSACHUSETTS**

**DO RECURRENT NOVAE BECOME TYPE Ia SUPERNOVAE?**

**Bradley E. Schaefer**

Department of Astronomy  
University of Texas  
Austin, TX 78712

Astrophysics has long had an important problem in identifying the progenitor systems of Type Ia supernovae, with a prominent possibility being Recurrent Novae. Recurrent Novae (like U Sco and CI Aql) are binaries in which mass is being poured onto a white dwarf near the Chandrasekhar mass limit. If the white dwarf is gaining mass over each eruption cycle, then it must inevitably become a supernova, but on average, the eruption might throw off more mass than is being accreted. With approximately known mass accretion rates, the question then becomes, “How much mass is ejected during an eruption?” I have been timing eclipses of U Sco and CI Aql since 1987, so I have very accurate orbital periods *before* their recent eruptions (1999 and 2000, respectively). Now I am measuring their orbital periods *after* the eruptions to determine the period change and hence the ejected mass. All together, this program will determine whether the white dwarfs in U Sco and CI Aql will become supernovae, and hence solve the old progenitor problem.

**WEB-BASED COURSES ON BASIC ASTRONOMICAL CONCEPTS**

**Lee Anne Willson**

**Doug Bennett**

**Travis Engelhaupt**

Department of Astronomy and Physics  
Iowa State University  
Ames, IA 50011

We’ve been working on a series of web-based courses ([www.polaris.iastate.edu](http://www.polaris.iastate.edu)) on basic astronomical concepts, such as coordinate systems and the diurnal motion of the sky. I will discuss the philosophy behind this project and show one or two examples of what we have developed so far.

**COMBINING THE 2MASS CATALOG AND THE AAVSO INTERNATIONAL DATABASE: RESULTS FOR CV-TYPE STARS****George Hawkins**AAVSO Headquarters  
25 Birch Street  
Cambridge, MA 02138

There have been few studies of the near-infrared properties of Cataclysmic Variables (CVs), and most do not include simultaneous visual observations. Thus it seems natural to combine results from the Two-Micron All-Sky Survey (2MASS) with the AAVSO International Database for the ~300 CVs and Nova-like variables in the AAVSO program. The 2MASS survey is now half finished, and a large catalogue has recently been released on the web covering half the sky (R. Cutri *et al.*, 2002, 2MASS Second Incremental Release Explanatory Supplement, <http://www.ipac.caltech.edu/2mass/releases/second/doc/explsup.html>). AAVSO visual estimates provide data on whether the CV was in outburst or quiescence at the time of the 2MASS observations. I show that CVs in outburst occupy a distinct part of the optical-near-infrared color-color diagram. By combining this study with the previous near-infrared results of Berriman, Szkody, and Capps (1985, *Month. Not. Royal Astron. Soc.*, **217**, 327), I also show the tracks in the color-color diagram of a few CVs as they go from quiescence to outburst.

**ECLIPSE CHANGES IN NOVALIKE CATAclysmic VARIABLE STARS***(paper presented at the 90th Spring Meeting, May 5, 2001)***Paul Groot**Harvard-Smithsonian Center for Astrophysics  
60 Garden Street  
Cambridge, MA 02138Department of Astrophysics  
University of Nijmegen  
P.O. Box 9010, Nijmegen  
The Netherlands

Novalike cataclysmic variables are often regarded as “constant” in their luminosity. However, evidence is mounting that they can vary by several magnitudes on longer timescales. Furthermore, in eclipsing systems the brightness of the system and depth of the eclipse appear correlated. I will show how AAVSO data can make very important contributions to this research.

**SPIRAL SHOCK WAVES IN DWARF NOVAE CATAclysmic  
VARIABLE STARS IN OUTBURST**

*(paper presented at the 90th Spring Meeting, May 5, 2001)*

**Paul Groot**

Harvard-Smithsonian Center for Astrophysics  
60 Garden Street  
Cambridge, MA 02138

Department of Astrophysics  
University of Nijmegen  
P.O. Box 9010, Nijmegen  
The Netherlands

There are now three dwarf nova systems known in which spiral shock waves have been detected in the disk during outburst. I will give an overview of what we have currently learned from this information and how AAVSO monitoring of dwarf nova outbursts is crucial to a better understanding of this phenomenon.

**REBECCA'S MAGNETOMETER****Casper H. Hossfield**

P.O. Box 23  
New Milford, NY 10959

I describe a McWilliams torsion-balance magnetometer I helped Arkansas high school senior Rebecca Ragat build as a science fair project. Rebecca won awards at the regional fair which qualified her to enter her magnetometer in the Arkansas State Science Fair, where she won awards from the United States Geological Survey and the United States Navy. For those interested in building a McWilliams torsion-balance magnetometer similar to Rebecca's, I have created a kit that is available through the AAVSO Solar Division.

I also describe my experience as a judge at the Orange County Regional Science Fair in Florida, and encourage other scientists to participate in programs that help students learn about science through hands-on experience. Offering to be a judge at your local science fair is a good way to do this.

*[Ed. note: We are saddened to report that longtime member, solar observer, and former AAVSO Solar Division Chair Casper Hossfield died November 27, 2002. With his unceasing curiosity, remarkable inventiveness, and feisty character, Cap will be greatly missed.]*

## **THE OTHER DARK SKY**

**John Pazmino**

Amateur Astronomers Association  
1010 Park Avenue  
New York, NY 10028

In previous demonstrations of New York's elimination of luminous graffiti from its skies, I focused attention on large-scale projects in the showcase districts of Manhattan. Although these works earned passionate respect in the dark sky movement, they by the same token were disheartening. New York was in some quarters of the movement regarded more as an unachievable Shangri-La than as a role model to emulate.

This presentation focuses on scenes of light abatement efforts in parts of New York which resemble other towns in scale and density. I photographed these scenes along a certain bus route in Brooklyn on my way home from work during October 2001. This route circulates through various "bedroom communities," each similar to a mid-size to large town elsewhere in the United States.

The subjects included individual structures—stores, banks, schools—and streetscapes mimicking downtowns. The latter portrayed a mix of atrocious and excellent lighting practice, being that these streets are in transition by the routine process of replacement and renovation.

The fixtures used—box lamps, fluted or Fresnel globes, subdued headsigns, indirect lighting—are casually obtainable by property managers at local outlets for lighting apparatus. They are routinely offered to the property managers by storefront designers, security services, contractors, and the community improvement or betterment councils.