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2002 OW Gem Secondary Eclipse: Call for Observations

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Although OW Gem has been well observed during primary eclipse, the secondary eclipse has only a handful of data points. In 2002 the secondary will be observable in the early morning hours centered on October 19, 2002, and lasting thirty days. AAVSO charts may be obtained from http://www.aavso.org; click on Star Charts and enter OW Gem into the name field of the chart search engine.

Chemistry Near Evolved Stars via mm Interferometry

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I present images and analysis of millimeter observations of TX Cam and IK Tau, showing observations of the HCN distribution around these stars, and discuss an unsuccessful search for methanol and CCH. Future millimeter arrays will greatly expand the knowledge of the chemistry in evolved star atmospheres.

Observations of the Cataclysmic Variable 1 RXPJ 113123+4322.5

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We observed the cataclysmic variable star 1 RXP J113123+4322.5 while it was undergoing its recent outburst. We collected data using *R* and *V* filters, alternating the filters every two minutes. We obtained two to three hour-long data sets on two different nights. The light curve was analyzed using Mathematica. The period determined was near 95 minutes and there was also some indication of a lower amplitude, higher frequency variation.

Observations and Modeling of the Eclipsing Binary GSC 3515:0865

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We have observed the ROTSE eclipsing binary, GSC 3515:0865 in *V* and *B*, and modeled the system using the Wilson-Devinney code. We find it to be a W UMa (type A) system. However, the degree of overcontact is slight and the data do not strongly reject a detached system.

Observations of Supernovae and Gamma-Ray Bursts as Cooperative Observing Exercises for Advanced Astronomy Classes

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For my advanced astronomy class, Physics 251, many of our laboratory exercises were cooperative assignments where each student contibuted observations and data towards a common goal. Observations of supernovae and gamma-ray burst afterglow candidates were natural targets of opportunity. This past Spring Semester we observed SN 2002ap and GRB020406. We observed the supernova with *R* and *V* filters and unfiltered several nights near maximum. We also observed the error region near GRB020406 and found some new, dim, very cool infrared rich stars. The results from these observations will be reported. These targets provided excellent, applied examples of the material being covered in lecture.

NASA's Swift Satellite: Gamma-Ray Bursts on the Fly

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One of the obstacles to ground-based observing of GRBs is the short life of the afterglow. NASA's Swift satellite will reduce the notification time to seconds and increase the number of observed GRBs to approximately 150 per year. Amateurs with the right equipment can play a role in the follow-up. This Penn State University-led mission will have a multitude of research targets and opportunities. For more information on the Swift mission, visit the URL http://swift.gsfc.nasa.gov.

Star Modeling with a Laptop

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The author has written a Windows program that writes and reads files to interface with the Wilson-Devinney (star modeling) program. Some solutions to systems recently studied at the Mt. John Observatory in New Zealand (WY Hor, TU Mus) will be presented.

Detection of Cosmic Rays Coming Into Our Atmosphere with the Help of Some Statistics

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In this experiment we used a percolation algorithm and some statistical tests to explore the following null hypothesis: that the current concept in High Energy Physics is true that simultaneous clicks, with two or more detectors spaced a good distance apart (5–10 meters), are not coincidental random clicks, but are Cosmic Ray Showers from high energy protons impinging on our atmosphere at energies close to Greisen-Zatsepin-Kuzmin limit.

The alternative hypothesis, which in our case is the one we want to prove if the data for the null hypothesis cannot reasonably show that the null hypothesis is true, is that there is no chance that cosmic ray detection is due to chance. If there is some question about the data, *i.e.*, there might be a chance those coincidental (simultaneous) clicks are not from cosmic rays, then the null hypothesis is false.

Day-to-Day Variation in Estimates of Sunspot Group Totals

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Observers who are learning the art of sunspot counting and who recognize the importance of correctly estimating the numbers of groups present sometimes ask how much variation in the group total can be expected from day to day. For example, if one had decided that five groups were present on one day, could an estimate of seven groups on the following day be considered reasonable? Three groups? Five groups again?

With the objective of being able to provide observers with appropriate expectations, this paper presents the results of a brief statistical study of

AAVSO Solar Committee estimates that was aimed at discovering the probabilities of changes of various amounts in the mean estimates of group numbers over successive days.

The results suggest that the probability of estimating the same numbers on successive days is equal to 0.255; of plus or minus one, 0.484; of plus or minus two, 0.160; of plus or minus three, 0.089; of plus or minus four, 0.012. No differences beyond four were found.

Street Stars

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It is prevalent to assert that all of home astronomy is stargazing. Yet stargazing can be a terribly frustrating pursuit due to weather, lifestyle conflicts, social acceptance, luminous graffiti, crime and public nuisances, park closings, and other factors. In many parts of the country, the failure to experience stargazing on a satisfying and consistent manner leads to abandonment of home astronomy.

New York City exploits earthly features of home astronomy, to the extent that loss of raw stargazing does not destroy the home astronomy culture. Several examples are presented of these, including indoor meetings, cultural events at nonastronomy facilities, architectural astronomy motifs, start-themed coffee shops. In places where raw stargazing is interdicted, features such as those enjoyed in New York City can rescue and enhance an otherwise ailing home astronomy culture.

CE Cas—a Tale of Two Cepheids

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The Cepheid variable CE Cas is actually two Cepheids separated by 2.5 arc-seconds in the open cluster NGC 7790. Point Spread Function CCD photometry resolves the light of each variable to produce the individual light curves.