Abstracts of Papers and Posters Presented at the 95th Annual Meeting of the AAVSO, Held in Newton, Massachusetts, October 26–28, 2006

The International Variable Star Index (VSX)

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Abstract The International Variable Star Index (VSX) is a new utility now available at the AAVSO. This program serves two distinct functions: an easy portal to access information about variable stars that is far more extensive than the GCVS; and a method of uploading variable star information. The information access includes all known cross-references, basic parameters such as period and variability type, and finding charts. The upload feature permits information update on known variables (such as a new period) as well as entering new variable stars into the system. This paper will show examples of how to use VSX and describes the vetting guidelines.

Ten-Year *BVRI* Monitoring of the Unique Hydrogen Maser Star MWC349

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Abstract The variable emission-line star MWC349 is the only known source of high-gain hydrogen maser and laser emission, which seems to arise in the ionized "skin" of the flaring neutral circumstellar disk seen almost edge-on. The uniqueness of this object prompts a short, transitory evolutionary state. Up to the end of 1990s, the data on the optical variability of the star were scarce and controversial. We have monitored it in *B*, *V, R* and *I* with the 31-in CCD telescope of Lowell Observatory for the past ten years. Two modes of variability emerge from our data: (1) a secular decline of 0.03–0.05 magnitude per year (depending on the color band) and (2) possible periodic component, with a period of 3 Å ± 0.3 years and an amplitude of 0.1–0.2 magnitude. More frequent observations of masing hydrogen radio lines, carried out with the 12-m ARO radio telescope on Kitt Peak, revealed a general correlation with the optical, but also strong independent variations on shorter time scales. Preliminary interpretation of these results will be presented. More frequent optical observations of MWC349 in optical domain are obviously needed.

In the Hunt for Variable Stars: Digging Into the Data Mine

Theo Jones
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Abstract Theo Jones, thirteen years old and in the seventh grade, is a finalist in the 2006 Discovery Channel Young Scientist Challenge. He has a strong interest in astronomy and physics, as well as computer programming. He has attended several astronomy camps facilitated by the Conceptual Astronomy and Physics Education Research (CAPER) team at the University of Arizona. He is currently working with Pebble Richwine, a member of the CAPER team, at the University of Arizona using the curriculum packet "In the Hunt for Variable Stars." He is here presenting data results from studying the following variables: V558 AQL, NSV 12374, and GX Aql. Software applications utilized include: FITSVIEW, ASTROMETRICA, AND MIRA 6.

Real Time Photometry and Follow-up of Variable Stars

Steve Brady
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Abstract An automated system for variable star observation with real time photometry and closed loop telescope scheduling is described. This new "AutoPhotometry" tool has demonstrated new opportunities for observatory productivity and discovery.

Effect of Finite Resolution on Magnitude Estimates

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Abstract We consider the effect of finite resolution of visual magnitude estimates on the limiting precision and accuracy of visual light curves.

Secular Variations in CCD Transformation Coefficients

Ronald E Zissell
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Abstract How often should one redetermine your CCD transformation coefficients? Data obtained over an interval of eleven years show nightly scatter greater than the error statistics and a small but real secular change in the coefficients.

Astronomy Teaching Resources: GEMS From the Lawrence Hall of Science

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Abstract The Great Explorations in Math and Science (GEMS) curriculum guide books developed by Lawrence Hall of Science (LHS) support teachers in implementing inquiry in their classrooms. The guides are easy to use and provide extensive background information for teachers in a variety of topics, including many aspects of astronomy. We have had extensive experience with each of these guides both with students and with teachers. The guides are classroom proven, research-based, and have solid pedagogical methods incorporated in them. The guides provide easy to implement activities that lend themselves seamlessly to the star party environment. Complete information may be found at http://www.lawrencehallofscience.org/gems

Fun Physics Demonstrations for Astronomy Outreach

Mary Ann Kadooka
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Abstract Here are fun ways to motivate attendees at your star parties. You can excite your audience with simple inertia demonstrations using raw eggs and paper tubes plus an orbiting nerf ball activity. Simple explanations on how these physics concepts are applied to astronomy phenomenon will be given.

Progress and Prospects—The AAVSO-AL Observing Venture

Roger Kolman
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Abstract Progress is reported here on the prospect of a cooperative observing venture between the AAVSO and the Astronomical League. Several proposals are suggested and strategies for implementation are discussed.

Harvard Plate Digitization Progress Report (poster)

Edward Los
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Abstract We have built a high speed digitizer with the goal of putting most of the 500,000 plates in the Harvard plate stacks online. The digitizer is now operational and undergoing qualification testing. A pilot project is underway to study variables in M44 as a demonstration of the scientific usefulness of the digitizer output.

Sunshine At Ground Zero

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Abstract The site of the late World Trade Center in New York is under development. The new World Trade Center, although itself a substantial project, differs significantly from the late one. One feature is to dedicate a section in the campus where the Sun shines during the memorial hours, 08:46 through 10:29 EDST, on every September 11th. This astronomy feature is the "Wedge of Light." But will it work? Is there a true "wedge of light" at Ground Zero?