Hartness House Workshop 2011

Cosponsored by the Springfield Telescope Makers, the Hartness House Inn, and Dudley Observatory

Thursday July 28, 2011

Workshop Program & Abstracts

8:00 – 8:55 Coffee and Registration

8:55 – 9:00 Introduction – John W. Briggs

9:00 – 9:15 Words of Welcome, with an Account of Stellafane's Prized Meteorite

Wayne Zuhl, Springfield Telescope Makers. Wayne is a long-time member of the group responsible for Stellafane and an active member of the Amateur Astronomers, Inc., operator of Sperry Observatory in Cranford, New Jersey. He is a collector of unusual meteorites and an avid deep-sky observer.

Abstract: A large meteorite owned by Springfield Telescope Makers came from the Toluca find and was donated by Governor James Hartness.

9:15 – 10:15 The Night of Raining Fire: The 1833 Leonid Meteor Storm

Richard Sanderson, Curator of Physical Science, Springfield Science Museum, Springfield, Massachusetts. Richard is also Director of the Museum's Seymour Planetarium. He is the author of a feature article about the 1833 meteor storm that appeared in *Sky & Telescope* magazine and is co-author of the 2006 book, *Illustrated Timeline of the Universe*.

Abstract: During the early morning hours of November 13, 1833, hundreds of thousands of meteors and fireballs blazed across the heavens over the eastern United States. The cosmic fireworks took the nation by surprise and convinced some terrified observers that they were witnessing the Day of Judgment. During the months that followed, astronomers uncovered the true nature of meteor showers and meteor storms.

Richard Sanderson has collected numerous accounts of the 1833 Leonid Meteor Storm that were published in period newspapers and journals across the country, many of which have never again appeared in print. Using these eyewitness descriptions, he will bring alive this historic astronomical event and survey the wide range of theories that attempted to explain its origin.

10:15 – 10:30 Coffee Break

10:30 – 11:30 The Science of Meteorites

Dr. Mike D. Reynolds is the Dean of Liberal Arts and Sciences and Professor of Astronomy at Florida State College. Dr. Reynolds has devoted some 40 years to astronomy and space sciences in the gamut of a high school and university instructor, planetarium and museum director, researcher, writer, and lecturer. He has received numerous recognitions for his work, including the 1986 Florida State Teacher of the Year, NASA Teacher-in-Space National Finalist, and the G. Bruce Blair Medal. He was the author of *Falling Stars* in 2000, and he is a past-president of the Antique Telescope Society.

Abstract: Dr. Mike Reynolds will overview the science of meteoritics, from meteorite classification to rare and unusual meteorites. The presentation will also include numerous hands-on samples and examples of meteorites – the Solar System's birth announcement – as well as tektites, impactites, and meteorwrongs! The chemistry of simple meteorite identification, by checking for nickel within a specimen, will be demonstrated. Mike will also do a book signing for his popular book on meteoritics, *Falling Stars*, after his talk (copies will be available for purchase).

11:30 – 11:45 A Demonstration of *Astrometrica* Shareware for CCD-based Solar System Astrometry

Pete Peterson, a member of the Astronomical Society of Southern New England, contributes astrometric observations of diverse small solar system bodies to the International Astronomical Union's Minor Planet Center from his backyard Wishing Star Observatory in Barrington, Rhode Island. John W. Briggs, a member of the Springfield Telescope Makers, does similar work as Astronomer in Residence at the HUT Observatory in Eagle, Colorado.

Abstract: We shall make a brief demonstration of the *Astrometrica* software, authored by Herbert Raab of Austria, which has been one of several technical developments now allowing convenient but rigorous astrometry at many observatories.

11:45 – 12:45 Lunch *Concurrent with lunch, the Porter-Hartness Museum of Telescope Making with be open with Curator Bert Willard*

12:45 – 1:45 Discovering Near-Earth Asteroids at MIT Lincoln Laboratory

Dr. J. Scott Stuart, Deputy Principal Investigator, Lincoln Near-Earth Asteroid Research Program, MIT Lincoln Laboratory

Abstract: The Lincoln Near-Earth Asteroid Research (LINEAR) program has discovered nearly half of all Near-Earth Asteroids (NEAs). On top of its success discovering NEAs, LINEAR has become a leading ground-based discoverer of comets, with more than one hundred and fifty comets now named "LINEAR." LINEAR discovers many comets when they are far away from the Sun on their inbound trajectory, thus allowing observation of the heating process missed when comets are discovered closer to the Sun. The LINEAR program originated as a new application of technology developed by Lincoln Laboratory to

provide the United States Air Force with enhanced capability to track spacecraft. This successful technology migration has resulted in an improved understanding of the NEAs with LINEAR data providing the basis for the best analyses of the asteroid impact risk to the Earth. This talk provides an overview of the LINEAR program, the productivity of the program, the scientific results gleaned from LINEAR data, descriptions of some of the more interesting objects discovered, and plans for future enhancements.

1:45 – 2:45 Hot Rocks on Blue Ice: Searching for Antarctic Meteorites

Professor Paul P. Sipiera, Adjunct Curator of Meteorites for the Robert A. Pritzker Center for Meteoritics and Polar Studies, Field Museum of Natural History, Chicago, Illinois

Abstract: In 1998 the Planetary Studies Foundation conducted the first privately funded Antarctic search for meteorites expedition to the Patriot Hills. Subsequent expeditions went to the Thiel Mountains in 2000 and to the Pecora Escarpment in 2002. The 2000 expedition was fortunate to have NASA astronauts Owen K. Garriott and James A. Lovell as participants. In total 54 meteorites were recovered from the three expeditions. The meteorite types include a few rare achondrites among the usual assortment of ordinary chondrites. These 54 meteorites currently reside at the Field Museum's Robert A. Pritzker Center for Meteoritics and Polar Studies. In his program Dr. Sipiera will describe what it takes to plan, organize, and to conduct an Antarctic expedition. He will also comment on the future of governmental programs and the value of continuing the annual search for meteorites program.

2:45 – 3:00 Coffee Break

3:00 – 4:00 Colorado Allsky Network

Chris L. Peterson, Cloudbait Observatory, Guffey, Colorado

Chris Peterson started developing computerized, guided mounts in the late 1970s. His astronomical interests follow two paths: instrumentation and analytical imaging. On the instrumentation front, he has designed or consulted in the design of a number of mount controllers. Very early on he became interested in aspects of remote observation, and he has worked with methods of accessing astronomical instrumentation over local and wide area networks. He has also developed numerous CCD and CMOS cameras, both for imaging and for guiding, and he developed guiding systems currently used on space-based platforms. Imaging interests include photometry of eclipsing binaries and fast rotators, as well as video analysis of occultations. Chris has a BS in Applied Physics from the California Institute of Technology. He owned a California company that designed and built ophthalmological surgical instruments. He is currently an independent consultant and a Research Associate at the Denver Museum of Nature and Science.

Abstract: The Denver Museum of Nature and Science established a network of all-sky meteor cameras in 2001. These cameras operate around Colorado, mostly at schools. Although originally intended to provide data useful for locating freshly fallen meteorites, the resultant data have proven valuable in many other areas: shower analysis, particle-size statistics, sporadic meteor orbit analysis, as well as being adjunct data to other instruments

such as radar and infrasound. Chris will discuss the hardware and software aspects of the cameras themselves, the data collection and consolidation process, and he will present some of the more interesting results.

4:00 – 5:00 Panel Discussion

5:00 – 6:15 Cocktail Hour

The Historic Hartness House Inn
Springfield, Vermont


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