

THE STANDARD STAR NEWSLETTER

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From the editor

I was pleasantly surprised to see quite a large number of posters at the recent American Astronomical Society meeting held in San Diego this last January dealing with Standard Stars and related topics. However, as our president Chris Corbally notes in his homily below, only a fraction of these projects come to the attention of this newsletter. I would even go so far as to say that we are seeing a renaissance in Standard Star work at the present time, with the multitude of surveys (2MASS, SDSS, etc.) and current and upcoming space missions (SPITZER, KEPLER, GAIA, etc.) all having the need to define and calibrate standard stars. Please encourage your colleagues to send in notes on their work to this newsletter, even if that work has not yet resulted in a published paper. The motivation for them to do so? Interactions with the experts who comprise the readership of this newsletter may help them to avoid pitfalls and duplication and to more efficiently design their standard star network. Two of the abstracts presented below are from posters from the AAS meeting. Under the "Meetings" section, I have included references for 6 more posters of direct relevance to the subject of Standard Stars.

A Note From the Chair

International Astronomical Union
Working Group on Standard Stars (WGSS)

Have you noticed on the SSN website, <http://stellar.phys.appstate.edu/ssn>, that the electronic edition of our Newsletter goes back 10 years now, to March 1995? So this is an anniversary edition, at least for the e-SSN. Congratulations, especially to our contributors, and not least our patient editor!

The recent series numbered in the thirties, with this as #38, have been running at about 6 to 7 pages

long; the series in the twenties had about twice this number of pages. Should we conclude that less work is being done on standard stars? I don't think so, particularly in view of the new photometric systems for surveys and in space. Rather I suspect that those working on these various systems feel less need for communication and discussion of what they are doing, at least via the SSN.

That seems shortsighted to me. Bob Garrison, who was my predecessor as Chair of the WGSS, wrote in SSN #28, exactly five years ago:

The goals of the WGSS, in my opinion, are to examine, organize, and co-ordinate the various sets of standards for fields in which they are used: radial velocities, spectral classification, photometry, astrometry, and others, as well as to provide a forum for discussion and education. Without a clearing house for co-ordination of standards, chaos soon develops.

The opportunity for chaos over standards, if communication and discussion are not made widely, still exists.

Chris Corbally
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Abstracts

A medium resolution near-infrared spectral atlas of O and early B stars

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We present intermediate resolution ($R \sim 8,000 - 12,000$) high signal-to-noise $H-$ and $K-$ band spectroscopy of a sample of 37 optically visible stars, ranging in spectral type from O3 to B3 and representing most luminosity classes. Spectra of this quality can be used to constrain the temperature, luminosity and general wind properties of OB stars, when used in conjunction with sophisticated atmospheric model codes. Most important is the need for moderately high resolutions ($R \geq 5000$) and very high signal-to-noise ($S/N \geq 150$) spectra for a meaningful profile analysis. When using near-infrared spectra for a classification system, moderately high signal-to-noise ($S/N \sim 100$) is still required, though the resolution can be relaxed to just a thousand or two. We also provide a set of very high quality near-infrared spectra of $H-$ and $K-$ band Brackett lines in six early-A dwarfs. These can be used to aid in the modeling and removal of such lines when early-A dwarfs are used for telluric spectroscopic standards.

Submitted March 21, 2005, THE ASTROPHYSICAL JOURNAL, SUPPLEMENT SERIES

For preprints, contact hanson@physics.uc.edu

Spectrophometric Standard Stars for the Infrared Spectrograph on Spitzer

G.C. Sloan¹, T.L. Herter¹, V. Charmandaris¹,
S.B. Fajardo-Acosta², M. Burgdorf², L. Armus²

¹ Cornell Univ.

² Spitzer Science Center

The Infrared Spectrograph (IRS) has observed a series of A dwarfs and K giants as spectrophotometric calibrators. We present an assessment of the quality of these standards in terms of their expected and actual photometry, spectral characteristics, and photometric stability.

We are interested in ground-based observations to improve our understanding of the IRS standard stars.

For lists of standard stars and information on when and how they have been observed, please see:

<http://isc.astro.cornell.edu/tech/cal/>

Presented at The 205th meeting of the AAS, San Diego, Jan 2005.

Identification of Nearby Carbon Dwarfs

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The comparison of optical and 2MASS near-infrared photometry for large samples of cataloged proper motion stars has the potential to discover previously unrecognized nearby objects of rare type. We have obtained classification spectra for carbon dwarf candidates which lie in a sparsely populated region of optical/near-IR color-color space within a cross reference of the New Luyten Two Tenths (NLTT) catalogue and 2MASS 2nd Release. We present the discovery of eight of the coolest and nearest carbon dwarfs, using absorptions of C₂ and/or CN within the optical spectra for identification.

The only known discriminator between carbon giants and dwarfs is currently luminosity, which can be gained through distance or inferred from proper motion. Therefore we have also observed giants and most known dwarfs to fully explore spectroscopic diagnostics that can be used to differentiate between carbon giants and dwarfs including those published recently in the Sloan Digital Sky Survey papers. We also plan to merge the NLTT with the 2MASS All-Sky Release and obtain classification spectra for candidates in the sky not covered in the first merger.

<http://spider.ipac.caltech.edu/staff/lowrance/AAS2005poster.pdf> 2005 BAAS 205 52.01

For preprints, contact lowrance@ipac.caltech.edu

Meetings

Below, I list the titles and authors of posters appearing at the January AAS meeting of direct interest to readers of this newsletter. The abstracts may be read on the AAS website, www.aas.org (look under Meetings, San Diego, Author Index, for the first author; the poster number is given at the beginning

of the title):

W. J. Borucki, D. G. Koch, G. S. Basri, D. W. Latham, S. B. Howell, “[33.05] Opportunities for High Precision Photometric Measurements of Variable Stars: Kepler Guest Investigator Program”

N. Mostek, S. S. Allam, R. C. Bohlin, S. E. Deustua, S. M. Kent, M. L. Lampton, S. L. Mufson, M. Richmond, J. A. Smith, D. L. Tucker, B. E. Woodgate, SNAP Collaboration, “[67.03] A Search for Stable Calibration Stars in the SNAP North Field”

D. L. Tucker, S. S. Allam, R. C. Bohlin, S. E. Deustua, S. M. Kent, M. L. Lampton, N. Mostek, S. L. Mufson, M. W. Richmond, J. A. Smith, B. E. Woodgate, SNAP Collaboration, “[67.04] ARC3.5m Optical/NIR Spectroscopy of Candidate SNAP Standard Stars”

K. E. Kraemer, C. W. Engelke, S. D. Price, “[67.09] Improving the Air Force Infrared Stellar Calibration Network with High Spectral Resolution Data from the Infrared Space Observatory”

C. W. Engelke, S. D. Price, C. Paxson, T. L. Murdock, “[67.10] MSX Observations of Standard Infrared Calibration Stars”

J.L. Stute, J.A. Smith, D.L. Tucker, S.S. Allam, C.T. Rodgers, C. Stoughton, “[91.06] Photometric Standard Stars in the Southern E-Regions, u'g'r'i'z' ”

Announcements

New Star Formation Book Published

The Formation of Stars

S. Stahler (Berkeley) & F. Palla (Arcetri)

Wiley-VCH announces the publication of “The Formation of Stars”, by Steven W. Stahler and Francesco Palla. This book is a comprehensive treatment of star formation, one of the most active fields of modern astronomy. The reader is guided through the subject in a logically compelling manner. Starting from a general description of stars and interstellar clouds, the authors delineate the earliest phases of stellar evolution. They discuss formation activity not only in the Milky Way, but also in other galaxies, both now and in the remote past. Theory and observation are thoroughly integrated, with the aid of numerous figures and images. In summary, this book is an invaluable resource, both as a text for physics and astronomy graduate students, and as a reference for professional scientists.

From the Table of Contents:

Part I (4 chapters): Star Formation in our Galaxy

Part II (4 chapters): Physical Processes in Molecular Clouds

Part III (4 chapters): From Clouds to Stars

Part IV (3 chapters): Environmental Impact of Young Stars

Part V (3 chapters): Pre-Main-Sequence Stars

Part VI (2 chapters): A Universe of Stars

Publication date: November 2004, softcover

Contributions to the next Newsletter, due out in October 2005, will be welcomed at any time by grayro@appstate.edu.

WHEN SUBMITTING AN ABSTRACT, PLEASE USE THE FOLLOWING TEMPLATE IF POSSIBLE:

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\begin{center}{\Large\bf{ Title
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          A. Author$^1$ and B. Author$^2$
}}\{\footnotesize $^1$  Institute One and Address
          \ \ $^2$  Institute Two and Address
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          TEXT OF ABSTRACT
}\{\bf Accepted by}
          JOURNAL
}\{\it For preprints, contact}
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