BIBLIOGRAPHY FOR STELLAR PHOTOMETRY AND SPECTROSCOPY

October 2003

RELEVANT IAU PUBLICATIONS

IAU Symposium No. 189, *Fundamental Stellar Properties*, 1997

IAU Symposium No. 111, *Calibration of Fundamental Stellar Quantities*, 1985.

IAU Colloquium No. 64, *Automated Data Retrieval in Astronomy*, 1982.

IAU Symposium No. 96, *Infrared Astronomy*, 1980.

IAU Symposium No. 54, *Problems of Absolute Magnitudes and Temperatures of Stars*, 1975.

IAU Symposium No. 50, *Spectral Classification and Multicolor Photometry*, 1973.

SPECTRA & SPECTRAL CLASSIFICATION

Corbally, Gray, & Garrison, *The MK Process at 50 Years*, 1994.

Buscombe, *MK Spectral Classification, 10th Catalog*, 1992.

Kaler, J.B. *The Stars and Their Spectra*, (Cambridge University Press), 1989.

Jaschek and Jaschek, *The Classification of Stars* (Cambridge University Press) 1987.

Margon, *A Display Atlas of Stellar Spectra*, (University of Washington), 1986. [Enlarged plots of data from Jacoby et al. 1984, *Ap.J. Suppl.*, **56**, 257.] QB881.M37 1986z.

Turnshek, Turnshek, Craine, & Boeshaar, *An Atlas of Digital Spectra of Cool Stars*, 1985.

Morgan, Abt and Tapscott, *Revised MK Spectral Atlas for Stars Earlier than the Sun*, 1978.

Meinel, Aveni, Stockton: *Catalog of Emission Lines in Astrophysical Objects*, 1969.

Keenan, "Spectral Classifi cation," in *Basic Astronomical Data*, ed. K. Strand.

Morgan, Keenan, and Kellman, *An Atlas of Stellar Spectra*, (the "MKK" Atlas).

FILTER PHOTOMETRY TECHNIQUES

Straizys & Davis Philip, *Conference on Photometric Systems and Standard Stars*, 1996

Sterken and Manfroid, *Astronomical Photometry, A Guide* (Kluwer), 1992.

C.R. Kitchin, *Astrophysical Techniques* (Adam Hilger Ltd.) Chapter 3, 1998.

Henden and Kaitchuk, *Astronomical Photometry* (Van Nostrand) 1982. Undergrad. level; practical aspects stressed.

A. Young, in *Methods of Experimental Physics*, Vol. **12**, Part A, pp. 1-192, 1974. Comprehensive discussion; the basic reference for all the details.

Photon counting: Morton, *Applied Optics*, **7**, 1, 1968. Keyes and Kingston, *Physics Today*, March 1972.

Handbooks and manuals at major observatories (e.g. NOAO, STScI, AAO, ESO, etc.)

Journals: *Applied Optics; Advances in Electronics and Electron Optics.*

DEFINITIONS AND DATA FOR STANDARD PHOTOMETRY SYSTEMS: BASIC REFERENCES

Most important catalogs are available in digital form, either on CDROM's or over the Internet. However, the original articles in digital or printed versions are often very useful to have as well, especially for details of calibration and technique, and some are identified next.

A. Broad Band Filter Photometry

UBVRI passbands: Bessell, *PASP*, **102**, 1181, 1990.

UBV definition, standards: Johnson and Morgan, *Ap.J.*, **117**, 486, 1953.

JHKLM standard systems: Bessell & Brett *PASP*, **100**, 1134, 1988.

HST-WFPC2 UBVRI System: Holtzman et al. *PASP*, **107**, 1065, 1995.

Thuan-Gunn broad band system (modifed UBVR for faint galaxies): Thuan & Gunn, *AJ*, **88**, 543, 1976; the Sloan Digital Sky Survey (SDSS) system is a wider-band version of the TG system (Fukugita et al., *A.J.*, **111**, 1748, 1996).

Consolidated data sets (stars): UBV, *US Naval Obs. Publ.*, Ser. II, **21**, 1968; Nicolet, *Astr. Ap. Suppl.*, **34**, 1, 1978; UBVRI, Lanz, *Astr. Ap. Suppl.*, 1986.

UBVRIJKL, values for common stellar types: Johnson, *Ann. Rev. Astr. Ap.*, **4**, 193, 1966. [Handy, but beware later changes in definitions of bands longward of V.]

UBV, consolidated galaxy data set, Longo & de Vaucouleurs, *Univ. Texas Monographs* 3A (1983), supplement 1985. 0.5-1.0μ photometry: Monograph 5, 1988.

Washington broad-band system (intended for faint GK stars): Canterna, *AJ*, **81**, 228, 1976.

Infrared, consolidated: Gezari, Schmitz and Mead, *Catalog of Infrared Observations*, 3rd ed., 1993 (NASA Reference Publication 1294); and later supplements.

IR Sky Surveys: The Infrared Processing and Analysis Center (IPAC) maintains the IRAS (mid-far IR) data archives and has released several IRAS catalogs including the Point Source Catalog and the Faint Source Survey. The *Explanatory Supplement* to the Faint Source Survey (Moshir *et al*. 1992) gives an overview of IRAS data analysis and products. IPAC also now maintains the 2MASS ground-based JHK all-sky survey (most documentation digital).

B. Intermediate Band Filter Photometry

Stromgren photometry: Definition, "Spectral Classification Through Narrow Band Photometry", *Ann. Rev. Astr. Ap.*, **4**, 1966.

Stromgren, consolidated: Lindemann and Hauck, *Astr. Ap. Suppl.*, **11**, 119, 1973; Hauck and Mermilliod, *Astr. Ap. Suppl.*, **40**, 1, 1980; Standard stars: *A.J.*, **75**, 978 and *A.J.*, **71**, 114.

DDO System: Definition, McClure and van den Bergh, *A.J.*, **73**, 313, 1968. Data: McClure and Forrester, *Publ. Dom. Astrophys. Obs.*, **15**, 439, 1981.

"European Late-Type Star System", Dickow et al. *Astr. Ap. Suppl.*, **2**, 1, 1970.

DDO + Wood System, Galaxies: Definition and data, Faber *Ap.J.*, **179**, 731, 1973.

C. Flux Calibration

UBVRIJHK zero points, temperature calibrations, bolometric corrections, for model atmospheres: Bessell, Castelli, & Plez, *Astr. Ap.*, **333**, 231, 1998. [Supersedes Bessell, *PASP*, **91**, 589, 1979.]

UBV zero points: Buser & Kurucz, *Astr. Ap.*, **70**, 555, 1978; Kurucz, *Ap.J. Supp.*, **40**, 1, 1979.

V-band zero point; spectrophotometry of Vega: Hayes & Latham, *Ap.J.*, **197**, 593, 1975. Oke & Schild, *Ap.J.*, **161**, 1015, 1970.

DDO zero points: Tripicco & Bell *A.J.*, **102**, 744, 1991.

Sloan Digital Sky Survey revised AB_ν system: Fukugita et al., *A.J.*, **111**, 1748, 1996.

D. Spectrophotometry

Optical SED's for common types of stars: Jacoby, Hunter and Christian *Ap.J. Suppl.*, **56**, 257, 1984; Gunn and Stryker, *Ap.J. Suppl.*, **52**, 121, 1983; Pickles, *PASP*, **110**, 863, 1998; *STELIB: a Library of Stellar Spectra at* $R \sim 2000$ Le Borgne et al. *A&A*, **402**, 433L, 2003.

IUE UV spectra, all types of stars: Wu et al., *IUE Ultraviolet Spectral Atlas (IUE Newsletter No. 22; No. 43)*, NASA Goddard, 1983, 1991; Heck, IUE Low-Dispersion Spectra Flux Catalogue 1984, *A&AS*, **57**, 213; Fanelli, O'Connell, Burstein, and Wu 1991, *Ap.J. Suppl.*, **82**, 197, 1992.

Empirical and theoretical data relevant to stellar populations & galaxies: *A Data Base for Galaxy Evolution Modeling*, Leitherer et al., *PASP*, **108**, 996, 1017, 1996. CDROM published in the AAS-CDROM Series.

SYNPHOT Manual (HST software to convert spectrophotometry to filter photometry on various systems): `http://stsdas.stsci.edu/Files/SynphotManual.pdf`.

DIGITAL CATALOGS

Nearly all standard catalogs of data on cosmic sources are now available over the Internet or on CDROM. Here are some recommended starting points:

ASTR 511 Recommended Web Links: see 511 home page.

Local IDL Databases: available databases are listed by typing *dbhelp* during an IDL session. More databases in IDL format are available from GSFC.

Local CDROMs: see listing on departmental Computer Home Page, under "Hardware": Astronomical CDROM Library.

Astronomical Internet Resources: *http://www.stsci.edu/astroweb/astronomy.html*. See "Data Resources": Data and Archive Centers; Astronomical Information Systems.

Among the better listings:

CDS/SIMBAD: Sets of Identifications, Measurements, and Bibliography for Astronomical Data. Master depository of all types of data for over 800,000 individual stars and 200,000 nonstellar sources. Best place to start looking for data, references on individual stars. *http://cdsweb.u-strasbg.fr/CDS.html*

GCPD: General Catalogue of Photometric Data (Mermilliod et al.): Collection of stellar photometric data, 80 systems. `http://obswww.unige.ch/gcpd/gcpd.html`

NED: NASA/IPAC Extragalactic Database. Like SIMBAD, but for galaxies only. Best place to start looking for data, references on individual galaxies. `http://nedwww.ipac.caltech.edu/`

SKYVIEW: depository of images from a number of important sky surveys (full EM spectrum) with nice retrieval interface. Easiest source of digital finding charts and multiband overlays. `http://skyview.gsfc.nasa.gov/cgi-bin/titlepage.pl`

MAST: the Space Telescope Science Institute Multimission Archive at Space Telescope, including the HST master data archive and the Guide Star Catalog. `http://archive.stsci.edu/`

HEASARC: NASA/GSFC High Energy Astrophysics Science Archive Research Center. Complete set of high energy (extreme UV, X-ray, Gamma-ray) databases with useful links to other data sets. Nice retrieval interface. `http://heasarc.gsfc.nasa.gov/`

Astrophysics Data System (ADS): NASA-sponsored depository of about 190 catalogs as well as the indispensable database of Astrophysics Abstracts. `http://adswww.harvard.edu/`

Sloan Digital Sky Survey: digital catalogue of 100 million stars & galaxies in π steradians of the northern sky. Multiband photometry and spectroscopy. `http://www.sdss.org/`

2MASS: Two Micron All Sky Survey, JHK bands, containing fluxes for 473 million sources (including 1.6 million galaxies). `http://www.ipac.caltech.edu/2mass/`

Astronomical Data Center (ADC): NASA/GSFC depository of catalogs and other data. Formerly very handy, but shut down by NASA, apparently for budgetary reasons. Many web site still link to this defunct service.