

Building-up a database of spectro-photometric standards from the UV to the NIR

J. Vernet¹, F. Kerber¹, V. Mainieri¹, T. Rauch², F. Saitta¹,
S. D'Odorico¹, R. Bohlin³, V. Ivanov⁴, C. Lidman⁴, E. Mason⁴,
A. Smette⁴, J. Walsh⁵, R. Fosbury⁵, P. Goldoni⁶, P. Groot⁷,
F. Hammer⁸, L. Kaper⁹, M. Horrobin¹⁰, P. Kjaergaard-Rasmussen¹¹
and F. Royer⁸

¹ESO, Karl-Schwarzschild-Str. 2, 85748 Garching bei München, Germany; ²Institute for Astronomy and Astrophysics, Kepler Center for Astro and Particle Physics, Eberhard Karls University, Sand 1, 72076 Tübingen, Germany; ³STScI, 3700 San Martin Drive, Baltimore, MD 21218, USA; ⁴ESO, Alonso de Cordova 3107, Vitacura, Santiago 19, Chile; ⁵ST-ECF, Karl-Schwarzschild-Str. 2, D-85748 Garching bei München, Germany; ⁶Service d'Astrophysique, Centre d'Etudes de Saclay, F-91190 Gif-sur-Yvette Cédex, France; ⁷Radboud Univ. Nijmegen, Postbus 9010, 6500 GL Nijmegen, The Netherlands; ⁸Observatoire de Paris, 5, place Jules Janssen, F-92195 Meudon, France; ⁹Astronomical Institute Anton Pannekoek, Universiteit van Amsterdam, Kruislaan 403, 1098 SJ Amsterdam, The Netherlands; ¹⁰Physikalisches Institut Universität zu Köln Zùlpicher Str. 77 D-50937 Köln; ¹¹Niels Bohr Institute for Astronomy, Blegdamsvej 17, DK-2100 Copenhagen, Denmark

We present results of a project aimed at establishing a set of 12 spectro-photometric standards over a wide wavelength range from 320 to 2500 nm. Currently no such set of standard stars covering the near-IR is available. Our strategy is to extend the useful range of existing well-established optical flux standards (Oke 1990, Hamuy *et al.* 1992, 1994) into the near-IR by means of integral field spectroscopy with SINFONI at the VLT combined with state-of-the-art white dwarf stellar atmospheric models (TMAP, Holberg *et al.* 2008). As a solid reference, we use two primary HST standard white dwarfs GD71 and GD153 and one HST secondary standard BD+17 4708. The data were collected through an ESO "Observatory Programme" over ~40 nights between February 2007 and September 2008.

Flux measurements were done in eight telluric absorption-free windows (one in the *J*-band, four in the *H*-band, three in the *K*-band). This careful choice of 'clean' atmospheric windows and the stability of SINFONI make it possible to achieve an accuracy of 3 to 6% depending on the wavelength band and stellar magnitude, which is well within our original goal of 10% accuracy.

While this project was originally tailored to the needs of the wide wavelength range (320-2500 nm) of X-shooter on the VLT, it will also benefit any other near-IR spectrographs, providing a huge improvement over existing flux calibration methods.

References

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