



Spectrum, SED and Photometry

- Low level of work in 2008-9 due to limited funding
- Revised java Spectrum library release
- Sample implementation of proposed SED/Photom model



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VO Software at the CfA

VO compatible software developed at the Harvard-Smithsonian Center for Astrophysics (CfA)

Title	Download	Description
NEW! Spectral Energy Distribution Library for developers.		<p>This package is for developers who want to develop applications built upon the SED library. The package contains a complete development including source code, sample applications and data, ant build scripts, and all third party jars that are required.</p> <p>Be aware that this package is a snapshot of our current code base and will change over time. It is not to be considered a release of the SED library nor used in a production setting.</p> <p>We are especially interested in hearing your suggestions, problems, criticisms. <i>In particular</i> we'd like to hear about use cases, and feature requests - how the SED library can help you reach your astronomical goals.</p> <p>You can download the developer's package here: SEDDev-1.2.0.7.tar.gz; for more information or to report problems, contact Jim Cant at CfA.</p>
NEW! IUELoader application		<p>This sample application is built using the SED Library. The application transforms a source FITS document into a SED compliant FITS document. That is, a FITS document that conforms to the FITS serialization standard specified in the IVOA Spectral Data Model (described here). Basically, the transformation amounts to extracting information from the input to create the appropriate values for the FITS keywords specified for the FITS serialization.</p>



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A step towards Photometry and SEDs in the VO

Jonathan McDowell - 2009 Nov 2

These files contain the Quasar SEDs from Elvis et al (1994) ApJS95,1. They have been mapped to FITS files containing one BINTABLE HDU per SED segment. Each BINTABLE HDU conforms to the VO SPECTRUM FITS format as defined in the VO Spectrum Data Model.

The metadata are about 80 percent there - I do not recommend these files be used for actual science analysis at this point.

Question 1: is this the right format for an SED? Or, should we make a more compact format of some kind? Right now each photometry point gets an HDU all to itself. Individual spectra (e.g. IUE) are multiple points to an HDU.

Question 2: We need to review the convention used for photometric points. I have adopted the following Photometry model and FITS mapping:

Utype	FITS Keyword	Explanation
photom		
photom.spco		
photom.spco.value	PHSPC01	Reference spectral coordinate
photom.spco.unit	PHSPU1	Unit of reference spectral coord.
photom.band	PHBAND1	String to *locally* identify the bandpass
photom.zero		
photom.zero.value	PHZPV1	Zero point flux value
photom.zero.unit	PHZPU1	Zero point flux unit
photom.zero.ref	RHZPRV1	Zero point reference value in instrument scale (e.g. mag)
photom.zero.ref_spec	PHZPRS1	URI to Spectrum instance with normalized spectral shape used for evaluating zero point (e.g. flat, Vega, etc.)
photom.transmission	PHTC1	URI to Spectrum instance of normalized transmission curve

The '1' subscript on the keywords is intended to allow in future an HDU with a group of related photometry measurements (e.g. V, B-V, U-B) that would need more than one Photom model to describe it. Here is an example:

Done



Proposed photometry model

UTYPE	FITS kw	Meaning	example
photom.spco.value	PHSPCO1	Fiducial spectral coord	2.2
photom.spco.unit	PHSPU1	Unit of spco.value	mu
photom.band	PHBAND1	Local name of band	K
photom.zero.value	PHZPV1	Flux zero point	590
photom.zero.unit	PHZPU1	Unit of zero point	Jy
photom.zero.ref	PHZPRV1	value of zero point	0.0 (mag)
photom.zero.ref_spec	PHZPRS1	URI of Ref Spectrum	ivo://.....
photom.transmission	PHTC1	URI of Trans Curve	ivo://....



Scheme of model

