



Spectral Classes Project

The goal:

To construct a web-based scheme that allows requests of all stars with like spectral classifications from pointed spectroscopic observations held in the MAST databases.

The team:

(Authors of
textbook)

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- (B. Skiff ??)



The process ingredients:

- ✓ get spectral types for stars in the MAST database from a classification catalog.
- ➔ ✓ design a scheme to interpret classifications into sequence of coded numbers (think of each code as a cell containing “like-star” spectral class).
- ❑ user will indicate spectral type range on a form
...calling script collects star names matching the query.
- ❑ results page tabulates star names and links to *FITS* files of spectra in MAST



Nomenclature scheme for a spectral class:

TT.tt.LL.PPPP

*spectral type,
subtype*

*lum.
class*

*spectral
peculiarities*

Numeric values for these pairs of letters are defined in a mapping table given in an IVOA Design Note and now being vetted by the OC of IAU Commission No. 45.



Peculiarities ($P_1P_2P_3P_4$) are a special problem!

Goal: express ≥ 2 peculiarities, without overbinning.

Solution:

1. a table of global peculiarities P_1P_2
(e.g.: “e”, “p”, “composite”). And, “ B_{ep} ” is not “ B_{pe} ”
2. tables of P_3P_4 peculiarities specific to a spectral type
(e.g.: m, f, Ba⁺)

Examples:

F5 --> 13.15.00.0000 || SC9/8 Tc --> 26.19.00.0021

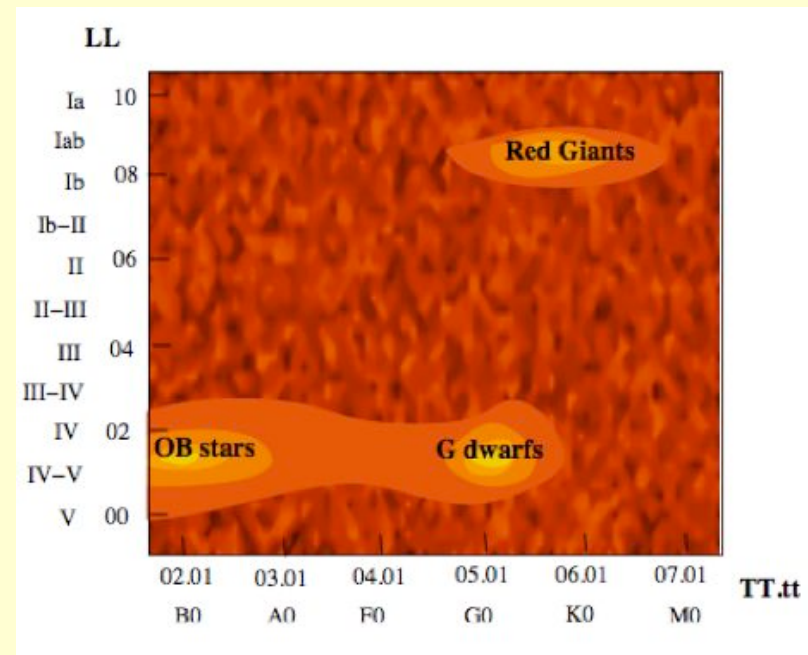
GIIp+MOIII --> 14.00.00.2118 || SNIa --> 29.10.00.0000



Possible user interfaces:

The screenshot shows the MAST website's search interface. At the top, there's a navigation bar with links for MAST, STScI, Tools, Mission Search, Tutorial, and Site Search. Below this is a 'Spectral Classes Search' section with four dropdown menus: Sp. Types (O, B, A, F), Subtypes (all, 0, 1, 2, 3, 4), Lum. Class (all, V, IV-V, IV, III), and Peculiarities (none comp., p, e, [e], wind). Below the menus are 'Search', 'Reset', and 'Clear Form' buttons. At the bottom, there's a text input field for 'Spectral class: (TT.tt.LL.PPPP)' with a light blue box below it.

(Menu selection or (hard way!) enter TT.tt.LL.PPPP string.)



(Drag a box across region of the HR-Diagram.)



Further notes:

- Randy's parsing script well along.
(TT.tt.LL mostly done!)
- Spectral Classifications may come from Simbad or Brian Skiff catalog.
- OC of IAUC45 to appoint committee to help us rank
“which among many is the best spectral type?” from a catalog source we select.