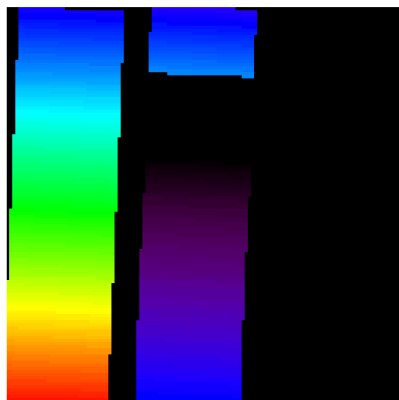


Wavelength Calibration of the IRS

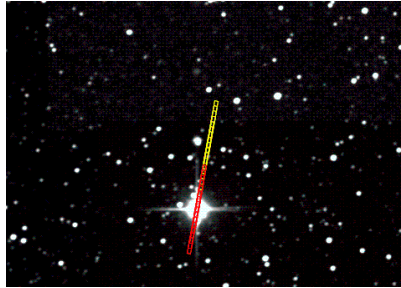
M. Burgdorf for the IRS-IST
(+ Dev + P. Morris)

Position of orders on SL Image



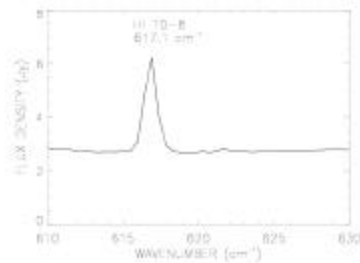
- First order on the left, second order on the right with third (bonus) order on top
- Find $\lambda = f(\text{pixel/pseudo-rectangle})$

Sources for λ Calibration



- Requirements: Many strong, narrow, well-defined lines, point/extended
- Certain problem orders
- LBVs, supergiants, HII-regions, PNe, reflection nebulae, etc.
- Examples: P Cygni, NGC 6543 and 7027,...

Lines Used for λ Calibration

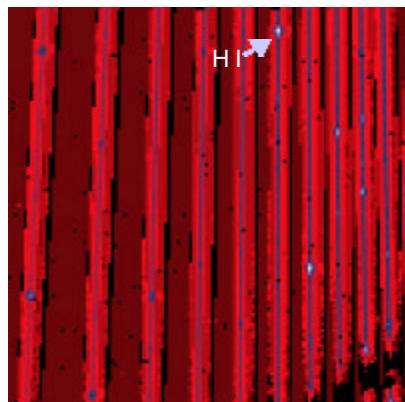


- H recombination lines from stars
- Ionic fine-structure lines from PNe
- Additional lines from objects with $z > 0$, Ti, etc.
- Usually 3 hours spent on λ calibration in a campaign of 1 week

Generation of λ Calibration File

- Start with 2D spectra from pipeline
- Determine position of lines on array and line tilts \Rightarrow polynomials
- Determine order widths from observations of extended sources
- Produce `wavsamp.tbl` and related files for each module

2D Spectrum of a LBV in SH



- Observations of this kind are the starting point of λ calibration
- Order 11 (left) – 20 (right) are shown
- HI, He I, and ion lines in emission

Current Status of λ Calibration

- Accuracy of wavelength calibration is $\approx \frac{1}{2}$ a resolution element or better
- Problem cases SH14 and LH20 have been (hopefully) fixed
- Fine tuning of some other orders in progress
- Interactive processing of several observations of several sources needed