Towards a probabilistic approach for DAC and SAC exact reconstruction in hot emission stars – the case of three component lines

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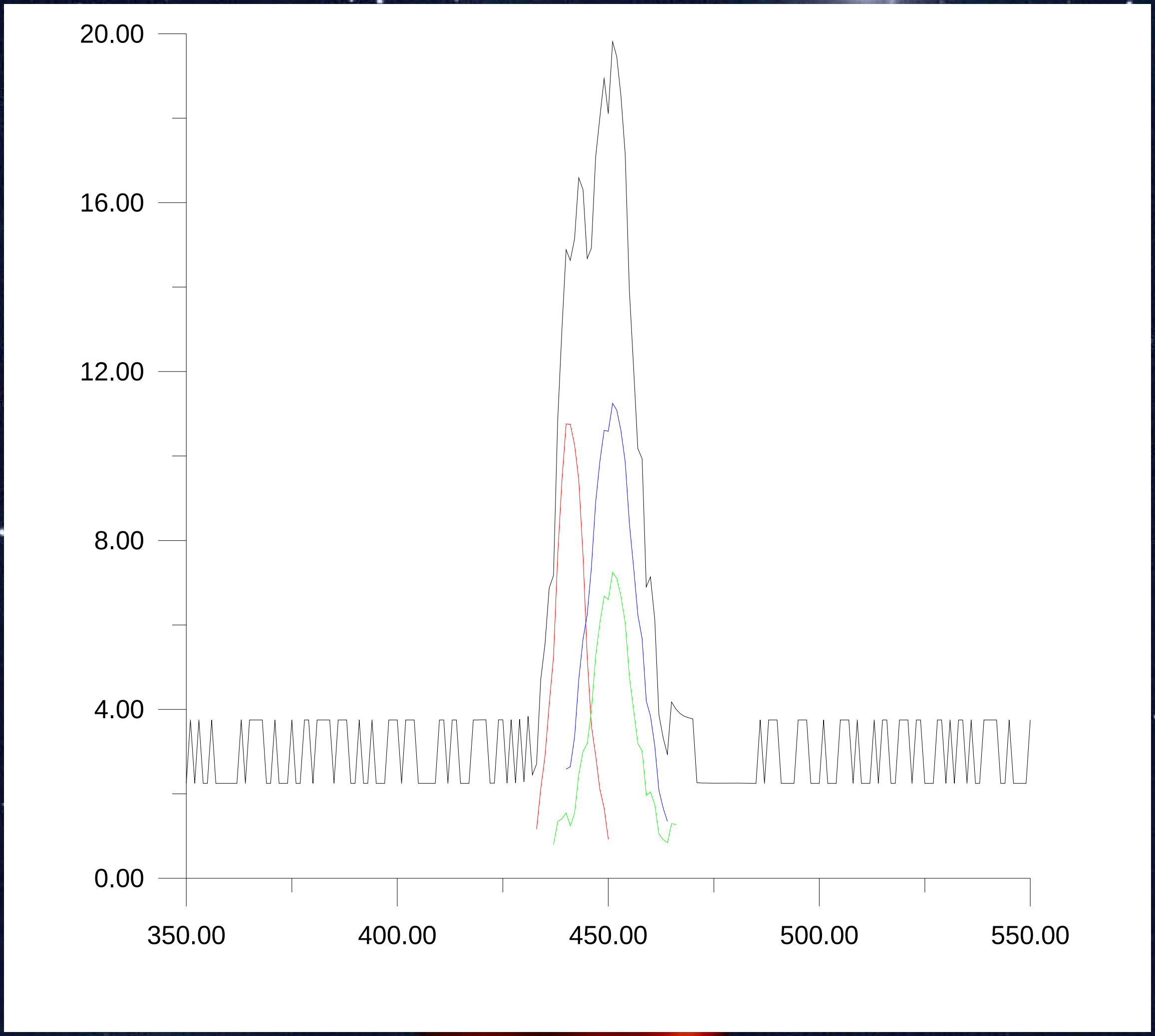
We treat each complex spectral line as a random signal, which is a superposition of a number of *independent* signals.

The number of components that make up the line complex, the width and the height/depth of each component line.

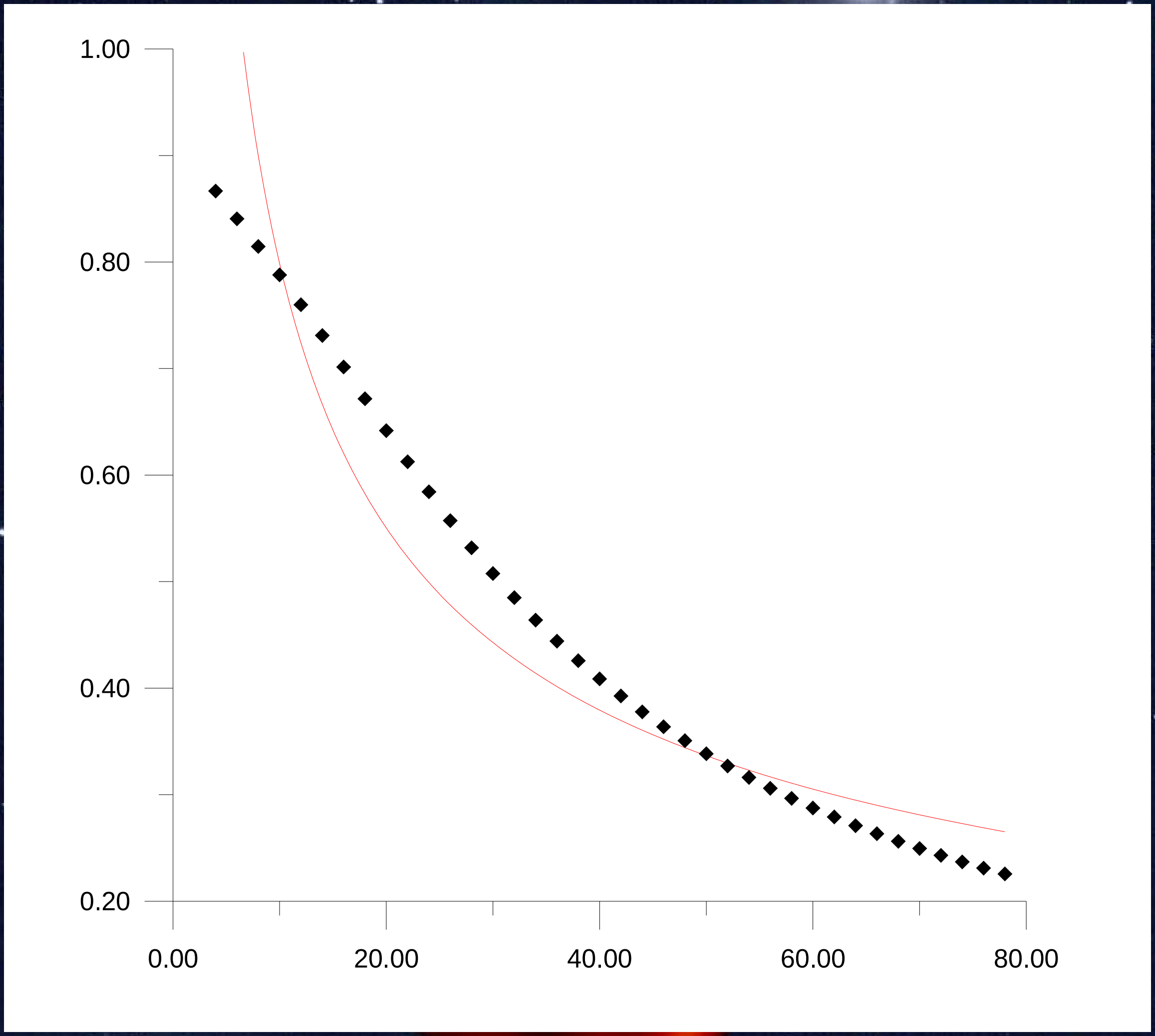


A signal representing a complex spectral line made up of three different components red, blue and green

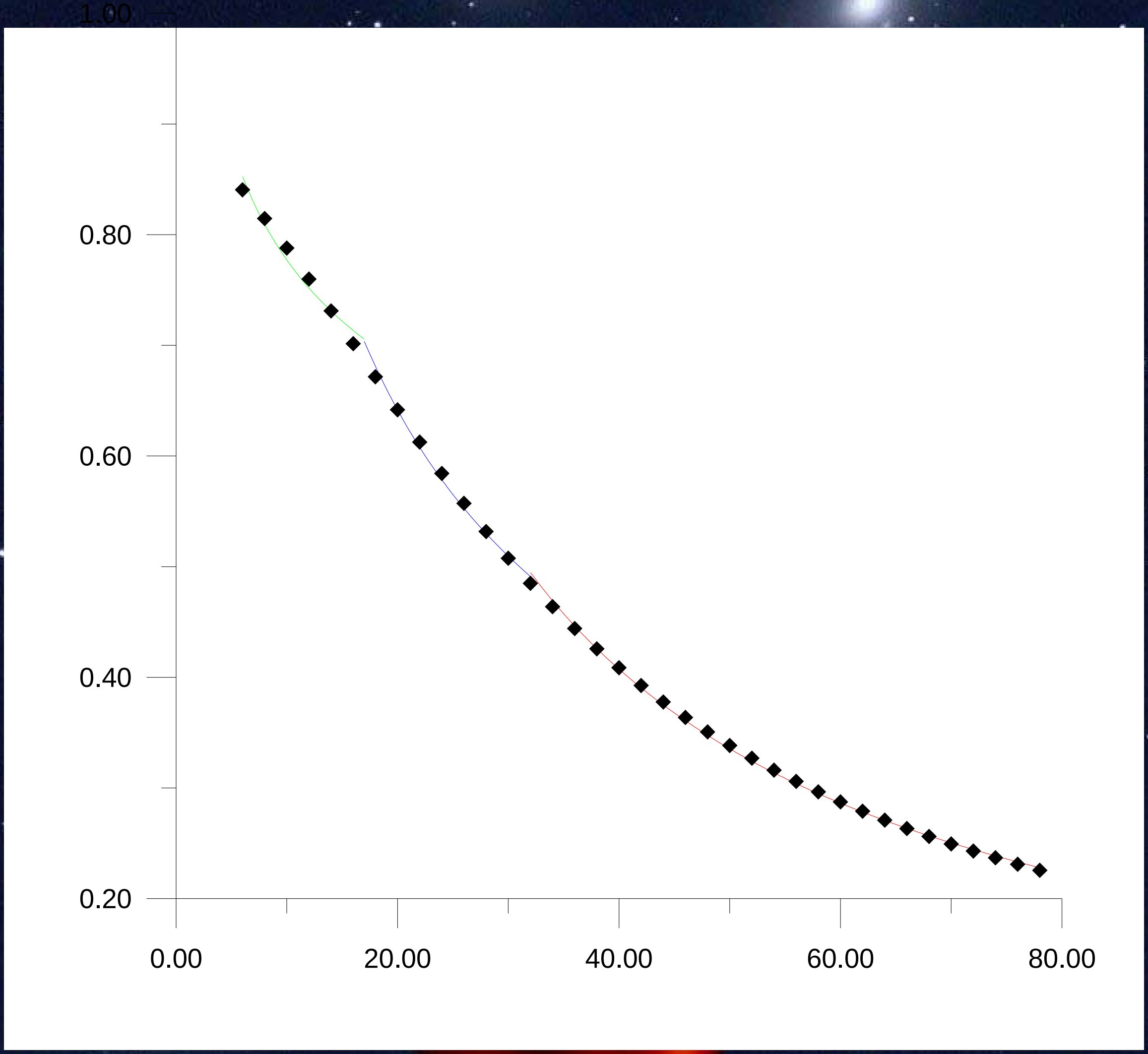
The variance function of a signal is

$$\gamma(T) = s_T^2 / s^2$$

Fitting this function can reveal the number of components that make up the line



The variance function of the signal. It is clear that a single power law does not fit the data



The variance function is fitted with three power laws indicating directly that the main signal is made up by three components