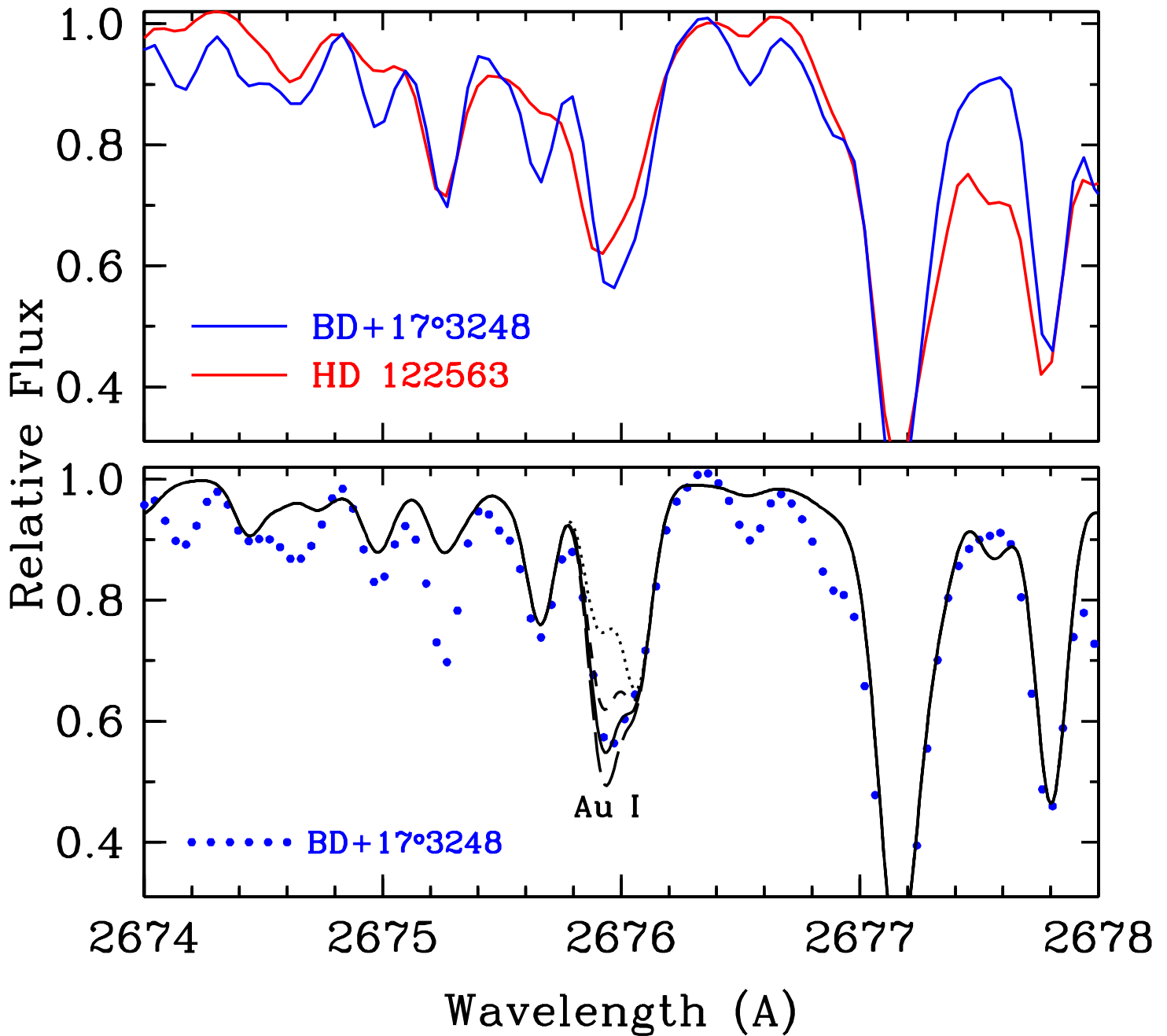


Observed HST-STIS and synthetic (computed) spectra in the region surrounding the gold spectral line at a wavelength of 2675.94 Angstroms. (One Angstrom = 1/100 millionth of a centimeter).

## A gold line in BD+17°3248



syntheses:  $\log \epsilon(\text{Au}) = -\infty, -0.8, -0.3, +0.2$

(Top) The observed spectrum of BD +17 3248, shown in blue, is compared to that of another old halo star in our Galaxy known as HD 122563, shown in red. The atomic gold spectral line is seen in BD +17 3248, but not in HD 122563. This detection could only be made using space telescopes such as the Hubble Space Telescope.

(Bottom) The observed BD +17 3248 spectrum, shown in blue dots, is compared to four synthetic spectra to determine the abundance of gold. The computed values, shown in order of increasing abundance of gold by dotted, short-dashed, solid, and long-dashed lines computed for these abundances are:  $\log \epsilon(\text{Au}) = -\infty, -0.80, -0.30, +0.2$ . The best fit is seen to be for  $\log \epsilon = -0.3$ , which indicates that gold in this star is less than a trillion times as abundant as hydrogen.