

SHORT COHERENCE LENGTH, DOPPLER VELOCIMETRY SYSTEM**Abstract of the Disclosure**

Apparatus for measuring the speed of blood in blood vessels in biological samples, for example, in retinal blood vessels, which apparatus includes: (a) a source of a beam of radiation having a principal wavelength, which radiation is substantially spatially coherent and has a temporal coherence length which is less than 1 picosecond; (b) a beam splitter for splitting the beam into a sample beam and reference beam; (c) optical apparatus for directing the sample beam to an area within the biological sample; (d) a reflector for reflecting the reference beam; (e) a detector for detecting an interference between the sample beam reflected from the area and the reflected reference beam and for generating an interference signal; (f) apparatus for altering an optical path length of the reference beam from the beam splitter to the detector at an alteration velocity; and (g) an analyzer for analyzing the interference signal to determine the speed of the blood in the area from a shift of a central frequency of a frequency spectrum of the interference signal from a frequency determined from the alteration velocity and the principal wavelength.

FIGURE 3

This Sheet Has Been Replaced

