

10.3.2.7 Wavelength converters

A *wavelength converter* converts radiation at one wavelength to radiation at another detectable wavelength or at a wavelength of improved responsivity of the detector. In X-ray spectroscopy a converter that emits optical radiation is called a *scintillator*. In most cases wavelength conversion is from short to long wavelength, but in the case of conversion of long to short wavelength the process is sometimes called *upconversion*. Wavelengths of coherent sources can be converted using *nonlinear optical techniques*. A typical example is *frequency doubling*.

An *image converter tube* is an electron tube that produces on its fluorescent screen an image of the irradiation pattern of its photosensitive input surface. An image converter, which produces an image with enhanced radiance, is sometimes called an *image intensifier*. An image converter adapted to provide scanning or time-resolved images is called a *streak tube*. If the image is recorded the whole device is an example of a *streak camera*.