

In 1917 Albert Einstein put forward a theory of “stimulated emission” – that photons could “stimulate” the emission of another photon that would possess identical properties to the first¹. This is the idea behind laser light and in 1958 Townes and Schawlow² worked on this theory to establish the principle that led to the development of the Laser: Light Amplification by Stimulated Emission of Radiation. In 1960 Theodore Maiman demonstrated the first practical laser with a crystal of ruby stimulated by a flashlamp and mirrors to amplify the lasing action³. The beam was a deep red colour with a wavelength of 694 nm. Since that first laser, many more materials have been discovered that are capable of producing laser light including dyes, gas mixtures and semiconductor materials, many of which are described below and presented in table 1. It has taken decades to develop reliable, appropriately designed laser systems for routine use in medical and other applications⁴. More recently, Intense Pulsed Light (IPL) systems are being used for many similar applications as lasers⁵