

SUPERCONTINUUM - THE NEXT-GEN LIGHT SOURCE

Educational All-In-Fiber Supercontinuum White Light Source

The Supercontinuum educational platform is designed to put control of non-linear optics into the hands of the student.

Based on an open, configurable platform, this system utilizes the power of an all-fiber based picosecond modelocked laser in combination with an ytterbium doped amplifier to produce a nominal 5 ps pulse with a 10 nJ pulse energy and a 50 MHz repetition rate.

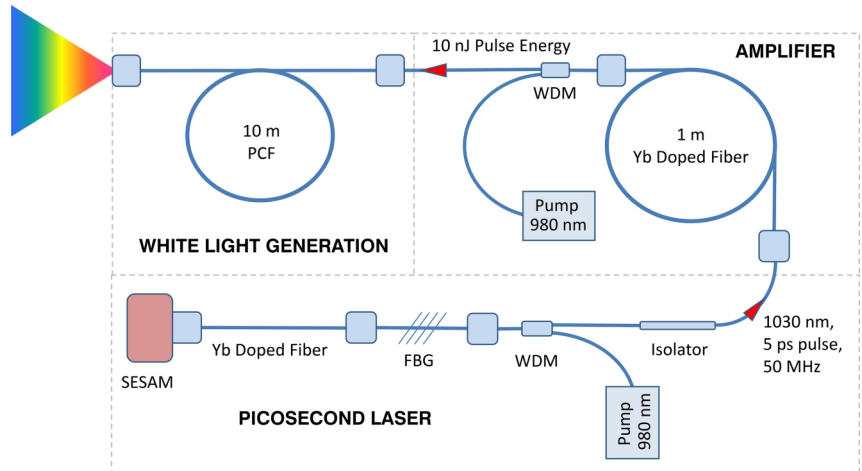


Fig. 2: Schematic of the ps-laser driven supercontinuum white light source.

From there, the pulse train can be fed into a specially designed nonlinear photonic crystal fiber (PCF). This PCF is at the core of all supercontinuum white light sources because of its specially designed structure which allows the seed pulse to propagate with zero dispersion; i.e. not stretching in time. As the seed pulse travels down the PCF, the stimulated Raman scattering process causes soliton-like diffusion of the pulse, expanding it in the spectral domain. At the point the seed exits the PCF, it has spread in wavelength to cover not only the entire visible spectrum, but also well into the infrared (400 -2000 nm). The combined output of the system produces a focusable power density of over 1000X brighter than that of the sun.

