

**The CUNY Center for Advanced Technology In Photonics Applications (CUNY CAT)**  
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## A Supercontinuum Source for Wide Band Multiple Communication Channels

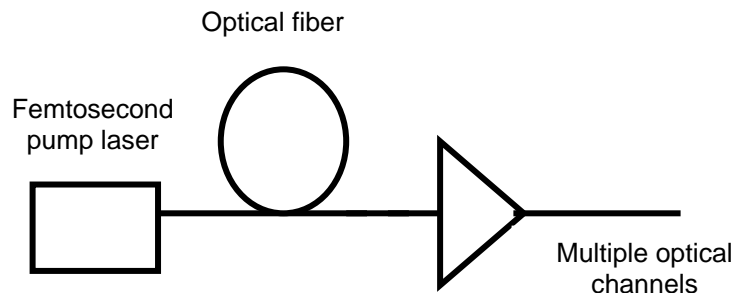
A supercontinuum is an ideal source for multiple channel ultra-WDM optical communication system.

### Potential Applications:

- WDM optical communication systems
- Optical frequency comb generator
- High-resolution spectroscopy
- Metrology

### Benefits

- Up to 20,000 channels around 1560 nm pump laser wavelength
- Fixed channel spacing with microwave accuracy
- Entire wavelength channels can be fixed to grid frequencies by adjusting few parameters



Basic configuration of the supercontinuum multiple channel source

### The technology

The Supercontinuum (SC) is a broad wavelength band source, which has been shown to have superior advantages for background free and high-bit rate optical fiber communication. Professor R. R. Alfano discovered and pioneered the know-how behind producing supercontinuum based on self phase modulation (SPM) and cross phase modulation (XPM) in bulk and fibers (supercontinuum is shown in the heading above) in the early 70's covering visible and near infrared spectral regions. SC generation is an effective way of obtaining large number of wavelength channels since it can easily generate more than 100 optical longitudinal modes, while maintaining their coherency. One advantage of using longitudinal modes of the SC spectrum is the fixed channel spacing with microwave accuracy. This means that entire wavelength channels can be fixed to grid frequencies by adjusting the wavelength.

This technology opportunity sheet describes continuing efforts in this area. Several patents may have been issued or are pending and which may be available for licensing.

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