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## Light source with adjustable wavelength

Posted by tepisto - 2008/02/05 16:51

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Has anyone had experience with the various methods of producing light with an adjustable wavelength? We want to do this to test the spectral response of photosensors. I have come across several options:

1. Monochromator. Port the light source (say tungsten/halogen) through a slit, reflect off a diffraction grating, back through another slit. Rotating the grating adjusts the wavelength that comes back through the final slit. Throughput is poor (may not be high enough for our purposes) and requires expensive light source to balance this problem.
2. Glass filters. Buy a bunch of glass bandpass filters. Need a lot of filters to cover the visible spectrum, need a method for switching them in and out (time consuming). Large aperture simplifies throughput problem, above.
3. Liquid crystal tunable filter. This is a neat device made by CRI that has a 1" aperture with an electronically adjustable central wavelength through a USB interface. Limited to central wavelengths 400-720, low throughput in the 400 range. High price tag ~\$8,000
4. Linear variable filter. This is a glass filter that you mate with a slit. As you move the position of the slit along the glass you get a different central wavelength. Similar to individual glass filters, except simplified operation. Obviously much smaller aperture as you have to get the light through the slit.

Has anyone used any of these setups or run this particular type of experiment? If so I am interested in hearing about it!

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