

Variable Exposure Rotary Spectrometer and Method of Use

Researchers at the University of South Florida have developed a compact spectrometer that is ideal for spectral measurements of non-uniform light fields.

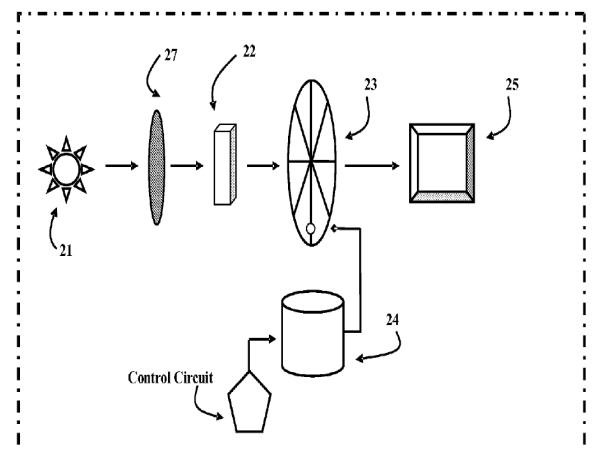
Spectrometers are well-known in the art of analytical instruments. They have been used as detector systems, concentration measurement systems and combinations of both. Sophisticated and highly-sensitive instruments have become common place, especially in laboratory environments. However, the desire to perform more field analyses has led to portable units being developed. A common drawback of the portable unit is that, in part because of their size, they are typically not suitable for the high caliber studies that lab-versions are capable of performing. Thus, there is a need for high-quality and reliable portable systems.

USF inventors have developed a spectrometer that is easily adapted for analysis of materials over a wide range of wavelengths, regardless of the intensity or the strength of the light fields. By using a rotating filter wheel mechanism, it is possible to electronically or optically vary the sensitivity and exposure of the instrument according to the intensity of the measured light field.

ADVANTAGES:

- Flexible, compact, and economical design
- Easily adapted for range of wavelengths
- Can be controlled manually and/or through the use of a feedback loop
- Ideal to provide noise reduction for phase-lock loop circuitry

Portable and Highly Efficient Spectrometer



Schematics of Spectrometer