Title: Compact Spectrometer Apparatus, Method, and Applications

Invention: Researchers at the University of Arizona have designed a microspectrometer that is very compact and directly interfaces with CMOS sensors; reducing the form factor greatly compared to current microspectrometer technology. The microspectrometer is 3D printable, thus reducing the cost of manufacturing to under $100 per unit.

Background: There is an abundance of spectrometer technology, for various spectroscopic applications. Although micro-spectrometers have been developed for specialized markets such as for DOD and Astronomical applications, those systems are relatively expensive. There is a need and strategic opportunity to produce smaller, cheaper micro spectrometers within the commercial, energy and medical industries.

Advantages:
- Compact
- Low-cost
- Can be attached to the sensor directly
- 3D printable
- Can be embedded in smart phone

Applications:
- Gas analysis in hospitals
- Characterization of proteins
- Near infrared spectroscopy for oil drilling
- Spectroscopy for astronomical observations
- Terrestrial atmospheric gas composition analysis

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Monitoring dissolved oxygen content in freshwater and marine ecosystems

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