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## High Resolution, Portable Surface Plasmon Resonance (SPR) Instrument

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**Keywords:** Compact, Simple, SPR, Analytical Tool, Portable

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### Background

The surface plasmon resonance (SPR) technique is applied as an analytical tool used for the detection and quantification of molecules. Numerous applications have been developed over the years, such as concentration measurement and affinity characterization. SPR biosensors use a label-free (reagent-free) mechanism to detect biomolecules and have become valuable tools for monitoring biomolecular interactions.

Two types of commercial SPR instruments are available: Biacore, a **high-end model** that is an expensive research-grade instrument with high resolution; and Spreeta, a **low-end model** that is an inexpensive but portable instrument with limited resolution.

There is a clear need for an affordable SPR that offers portability without sacrificing high resolution and quality.

### Technology

Dr. Masson from the *Université de Montréal* has developed a high-efficiency surface plasmon resonance (SPR) instrument capable of equalling the resolution obtained by high-end SPR instruments.

The apparatus relies on a simple and improved optical path using wavelength interrogation. This avoids the need for moving parts with highly precise alignments, producing a low maintenance instrument easily made portable. Its unique design also ensures consistent, high resolution.

### Proof of Principle Status

- Prototype completed.
- Optical path optimized.
- Proof of concept completed. Using the refractive index sensitivity of the instrument, increasing concentrations of sucrose in an aqueous solution were measured with accuracy.

### Applications

- Measuring concentrations of biological molecules such as proteins, DNA, drugs, etc.
- Determining the refractive index of sugar or salt for analyses in the food industry.

### Competitive Advantages

- **High resolution.** Equivalent to resolutions obtained with high-end models. Approximately  $10^{-7}$  RIU.
- **Portability.** The device measures (in inches) about 6 x 6 x 12.
- **Low production cost per unit.** This instrument can be manufactured with demonstrated industrial components available at low cost to the manufacturer.
- **Low maintenance.** It does not require a precise alignment of parts, making of it a portable, robust instrument.

### Patent Status

PCT application filed (Q3/2009)

### Business Opportunity

Univalor is seeking partner for development and collaboration according to market needs and specifications.

### Contact

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