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Nanomaterials and Phase Sensitive based Signal Enhancement in Surface**Plasmon Resonance**

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Abstract

Measurement of small molecules in extremely dilute concentrations of analyte play an important role in different issues ranging from food industry to biological, pharmaceutical and therapeutical applications. Surface plasmon resonance (SPR) sensors can be a suitable choice for detection of small molecules based on interactions with biomolecules. However, sensitivity of the system for detection of these molecules is very low. Improving sensitivity has been a challenge for years. Therefore, different methods have been used to enhance SPR signals. The SPR signal enhancement using numerous nanomaterials has provided exciting results. Among various nanomaterials, metal nanoparticles (for instance gold, silver and

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