

Development of a point-of-care nano-photonic platform for the quantitative detection of biomarkers in plasma of patients affected by cancer and infectious diseases

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In the last two decades, one-dimensional photonic crystals (1D-PCs) have been widely utilized in various applications, including gas sensing, biosensing, and monitoring fluidic conditions in microchannels. In this talk we describe a novel approach to cancer/viral biomarker detection. Our approach combines the use of 1D-PC-based biochips that sustain Bloch surface waves (BSW) with a direct or direct competitive assays in label-free and fluorescence configurations. The assays make use of monoclonal antibodies conjugated with quantum dots to detect and quantify the presence of molecular biomarkers in cell lysate and human plasma samples.