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## Interferometric biosensors for advanced point-of-care diagnostics

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The development of new tools provides a delocalized, fast, user-friendly and accurate diagnosis and it is one of the most pursued goals in the healthcare field. This is driven by the fact that actual detection technologies involve time-consuming steps at analytical laboratories and specialized personnel which highly increase the cost of the analysis. Consequently, there is an urgent need for new diagnostic systems allowing a more flexible, cheaper and cost-effective analysis. In this context, optical biosensors operated by the evanescent field sensing principle are emerging as the next generation of detection technologies. They provide a sensitive, selective and direct detection avoiding purification and amplification steps which usually are affecting the accuracy of the result. In addition, optical biosensors can be integrated in point-of-care (PoC) devices, autonomous and portable systems incorporating all the different components required for the detection in order to bring an affordable medical diagnosis testing closer for example to the patient. Among the different optical biosensors, the interferometric ones show the highest sensitivity which is crucial to focus on highly sophisticated biomedical and environmental applications such as the fast detection of sepsis and identification of bacteria, the detection of DNA/RNA-based biomarkers without amplifying, the implantation of on-line controlled systems for *in situ* multiplexed detection of sea contaminants, and the quantification of very low quantities of proteins in urine.

### Biography

Ana Belen Gonzalez-Guerrero is a Senior Researcher at the Catalan Institute of Nanoscience and Nanotechnology. Her expertise is related to "Point-of-care diagnostics systems based on photonics biosensors including the engineering of the devices and optical arrangements, the chemical surface modification and the investigation of bioapplications". She has completed her PhD from the University Autonomous of Barcelona. She has published more than 15 papers in peer-reviewed journals, has participated in Technology Transfer Processes and has supervised the work of several Masters and PhD students.

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