

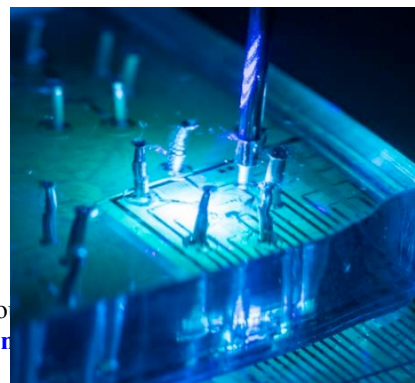
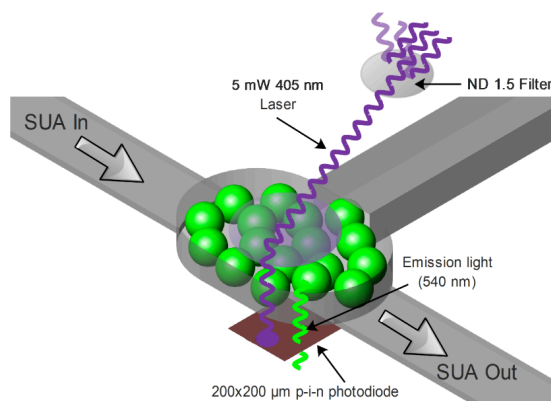
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From sample to answer: Biochip with integrated sample preparation and optical detection

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Detection of bioanalytes (such as DNA, RNA, proteins, cells, metabolic products) is a central aspect in medicine, food safety and environmental control. We use thin-film silicon photodetectors as optical transducers in microfluidic biochips. These transducers are integrated with molecular recognition elements capable of specifically capturing the bioanalyte of interest. To take full advantage of the miniaturization of the biosensor, besides enhancing intrinsic sensitivity, it is crucial to address two additional issues: (i) the fluidic handling from sample acquisition to sensor; and (ii) the interfering effects of the chemically and physically complex biological sample matrix.



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