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## Graphene-based biosensors for diagnostics

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Graphene has shown to be an interesting material for building advantageous biosensors with interest for diagnostics. Between the various forms of graphene graphene oxide (GO) and graphene quantum dots (GQDs) display valuable characteristics with interest for biosensing platforms and even smart devices such as nano/micromotors for various applications. We focus on both optical and electrical-based biosensing applications in which exfoliated graphene is involved. Our various applications of graphene include a) GO – based microarray & laterals flow technologies taking advantages of high quenching efficiency of GO. A “turn ON by a pathogen” device will be shown as a highly sensitive detection system using plastics or paper/nanopaper substrates; b) GQDs-based sensors for contaminants detection based on the use of multifunctional composite materials that enable rapid, simple and sensitive platforms in connection to smartphone; c) electroluminescent-based approaches d) A water activated GO transfer technology combined with laser scribing for fast patterning of a touch sensitive device with interest for electronic devices including sensing as well as for a cost-efficient nanomotor building technology for several applications. This work is supported by EU (Graphene Flagship), CERCA Programme / Generalitat de Catalunya.