Symposium EL03 - 2D Materials—Nanofabrication and Applications

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Graphene Biosensors—High-Resolution Monitoring of Loop Mediated Amplification Reaction

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Graphene-based field effect transistors (GFETs) are considered one the most promising electrical sensing technology among the next generation of electronic biosensors. These biosensors can detect biomarkers such as molecules and pathogens by measuring changes in electrical signals due to variations in the electronic environment around the transistor channel. It has been shown that these biosensors present advantages such as high sensitivity, rapid response, real-time monitoring, low power consumption, and reduced noise levels. Here, we report on progress with functionalized commercial GFETs (graphene/nanoparticle hybrid devices) for loop-mediated isothermal amplification (LAMP) detection. The products are detected via Dirac point shifts with a differential scheme using compact electronic boards, suited for point-of-care testing.

Presenters: **Renan Villarreal**, **Diego Fernando Jaramillo Calderon**, **Sorin Melinte**, **Omar Nyabi**, **Pierre Vandenberghe**, **Jean-Luc Gala**

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