

Title (en)
GRAPHENE FET DEVICES, SYSTEMS, AND METHODS OF USING THE SAME FOR SEQUENCING NUCLEIC ACIDS

Title (de)
GRAPHEN-FET-VORRICHTUNGEN, SYSTEME UND VERFAHREN ZUR VERWENDUNG DAVON ZUR SEQUENZIERUNG VON NUKLEINSÄUREN

Title (fr)
DISPOSITIFS À FET AU GRAPHÈNE, SYSTÈMES ET LEURS MÉTHODES D'UTILISATION POUR LE SÉQUENÇAGE D'ACIDES NUCLÉIQUES

Publication
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Abstract (en)
[origin: WO2016205253A1] Provided herein are devices, systems, and methods of employing the same for the performance of bioinformatics analysis. The apparatuses and methods of the disclosure are directed in part to large scale graphene FET sensors, arrays, and integrated circuits employing the same for analyte measurements. The present GFET sensors, arrays, and integrated circuits may be fabricated using conventional CMOS processing techniques based on improved GFET pixel and array designs that increase measurement sensitivity and accuracy, and at the same time facilitate significantly small pixel sizes and dense GFET sensor based arrays. Improved fabrication techniques employing graphene as a reaction layer provide for rapid data acquisition from small sensors to large and dense arrays of sensors. Such arrays may be employed to detect a presence and/or concentration changes of various analyte types in a wide variety of chemical and/or biological processes, including DNA hybridization and/or sequencing reactions. Accordingly, GFET arrays facilitate DNA sequencing techniques based on monitoring changes in hydrogen ion concentration (pH), changes in other analyte concentration, and/or binding events associated with chemical processes relating to DNA synthesis within a gated reaction chamber of the GFET based sensor.

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Citation (search report)

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