

# Research proposal on Synthesis and Characterization of MoS<sub>2</sub> biosensors

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Transition Metal Dichalcogenide (TMD), graphene, and other such two-dimensional (2D) nanomaterials provide an opportunity for ultra-sensitive biosensor applications because of its compatibility with commercial planar processes for circuits with larger dimensions. The sensitivity of the biosensor based on graphene FETs is restricted due to the zero band gap of graphene. The drawback of graphene FET is that the leakage current is produced in the OFF-state condition also. So accurately we cannot predict the drain current due to the biomolecules targets. The MoS<sub>2</sub> FET-based biosensor can be employed for highly sensitive and label-free electrical identification of bacteria and virus at an earlier Stage. It has low friction and it is also used a dry lubricant. MoS<sub>2</sub> is a diamagnetic with a band gap of 1.23eV. MoS<sub>2</sub> found in nature as one of two phases. One is 2H-MoS<sub>2</sub> and 3R-MoS<sub>2</sub>, where H indicates the hexagonal symmetry and R indicates the rhombohedral symmetry. MoS<sub>2</sub> is often a component of blends and composites that require low friction. We add graphite means it will help to improve the sticking. One of the examples are two stroke engines, bicycle coaster brakes, and bullets. The sensitivity of graphene FET biosensor is fundamentally restricted by zero band gap of graphene which results in increased leakage and reduced sensitivity. MoS<sub>2</sub> also possesses mechanical strength, electrical conductivity, and it can emit light, opening possible applications such as photo-detectors. Under an electric field MoS<sub>2</sub> monolayers have been found to superconduct at temperatures below 9.4K. By using this component we going to investigate the further techniques such as XRD using Retiveld Confinement powder method, Jana 2006 software, Electron density distribution, MEM, SEM, Optical properties and Magnetic Properties. These are the scopes for to investigate about the working of sensors on basis of electron distribution.

## Reference,

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