Abstract Submitted
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Oxide Semiconductor Nanowire Biosensors STEPHEN FLEMING, XUAN GAO, Case Western Reserve University — Recently, several physics research groups have demonstrated that nanowire field effect transistors (FETs) can function as sensors to detect extremely low concentrations of biological molecules in solution. Continued development and improved understanding of these types of sensors is essential for the emergence of new technologies in disease diagnostics, drug screening, and the single molecule study of biomolecular reactions, to name only a few areas. Currently, the ability to directly and specifically sense molecules in solution would be groundbreaking for medicine, allowing real-time sensing to be incorporated into biomedical devices, as well as used in research. This research aims to contribute to an understanding of the functionality of oxide nanowire FETs, and demonstrate their potential for use as biomolecular sensors, aided in low concentration detection by dielectrophoretic concentration of analyte molecules.

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