# Graphene Sensing of Biomolecules and Chemical Environment

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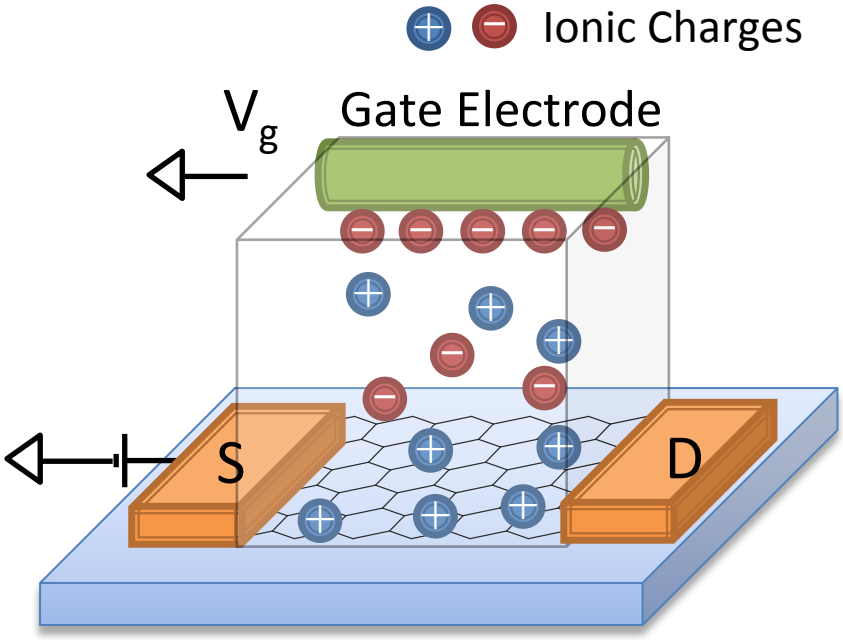
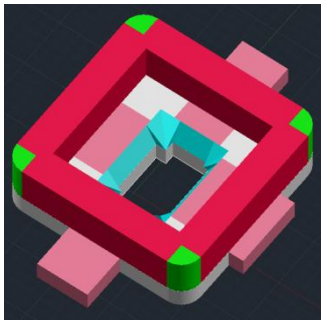



**Graphene-based biomolecular and chemical sensor made from a solution-gated field-effect transistor.**



Fluidic chamber placed on top of graphene sensor to exchange fluid and hence protein or chemical concentration during a measurement.

**Sensors have innumerable applications in the human health, environmental, security, and other industries.** Growing sophistication in these fields, ranging from the push for personalized healthcare to more careful screening of hazardous chemicals, demands improved technologies – especially in the arenas of sensitivity and cost.

Epitaxial graphene's unique properties, large production size, and high quality provide a new possibility for sensing devices. Our work shows that graphene sensors successfully detect chemical species (ionic strength, pH) and protein. Ongoing work aims to push detection sensitivity to very low concentrations as well as to detect a specific molecule type in a noisy background (e.g. cancer protein markers in blood).

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Sponsored by NSF-MRSEC
through contract DMR-0820382

Georgia Tech MRSEC Materials Research Science and Engineering Center