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# Electrochemical Sensor & Systems



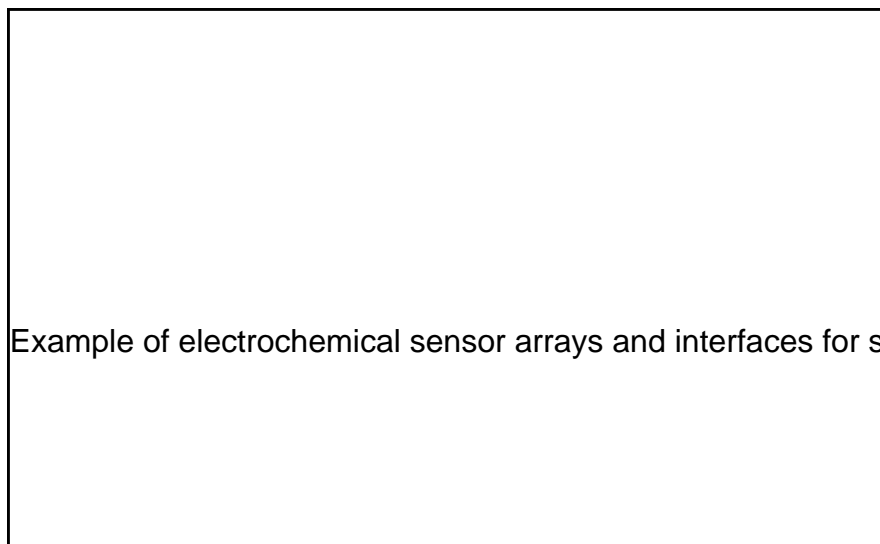
Example of electrochemical Sensor arrays and interfaces for

Example of electrochemical sensor

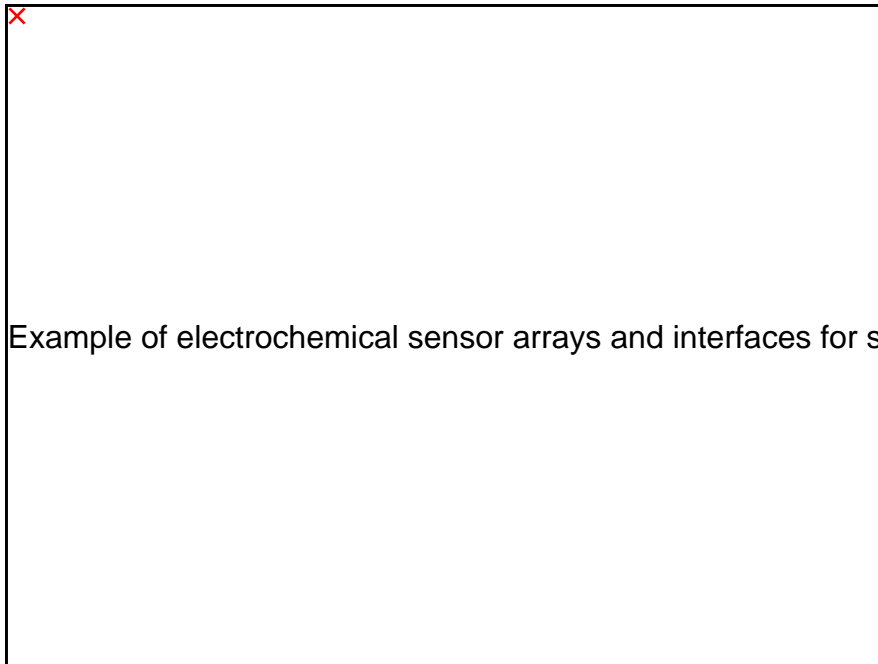
arrays and interfaces for sample addition and signal processing.

**A current research focus is to develop chemical sensors that can be used to screen liquids for harmful analytes and provide an electrochemical signature profile. Electrochemistry is the area of chemistry dealing with the interconversion of electrical energy and chemical energy. Electrochemical processes take place at the electrode-solution interface.**

Typically three basic electrochemical processes are studied, (i) potentiometry, the measurement of a cell potential at zero current, (ii) voltammetry, in which an oxidizing potential is applied between the cell electrodes and the cell current is measured; and (iii) conductimetry, where the conductance of the cell is measured by an alternating current.



Example of electrochemical sensor arrays and interfaces for sa



Example of electrochemical sensor arrays and interfaces for sample addition and signal processing.

The electrochemical behavior of the fabricated electrodes can also be characterized and is used to test for reproducibility and quality control for newly designed electrochemical sensors. The electrochemical sensors that we design consist of the three electrode configuration, consisting of a working, reference and counter electrode. Chemically modified electrodes comprise a relatively modern approach to electrode systems and have broad applications in chemical sensing.

This form of surface functionalisation is used to enhance analyte detection, increasing selectivity and sensitivity and can also be used to reduce biofouling and increase the operation of the sensor making measurement more stable over a greater period of time.

Current applications of this technology are focused on the food/beverage industry and also for detection of organophosphates.

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