



## METHOD FOR TUNING AN ELECTROCHEMICAL DOUBLE LAYER TO GENERATE SOUND REPRESENTATIVE OF PROPERTIES OF THE DOUBLE LAYER

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### The Invention

UW-Madison researchers have developed a new way to monitor the behavior of electrochemical double layers (EDL) by bringing them into spontaneous oscillation. The inventors used a modified multivibrator circuit to drive the EDL into resonance by varying the voltage applied to the electrochemical cell. The cell behaves as a capacitor, charging and discharging with a certain frequency (designed to be in the audible range) that depends on the ionic configuration at the interface and the electrode material. When the cell is connected to a speaker, this generates audio output that changes pitch based on EDL rearrangements. The sound is a representation of ions rearranging at the electrode – electrolyte interface, providing unprecedented insight into molecular-scale behavior. The unique combination provided by this innovation, including the auditory output, could be leveraged in a variety of ways, including as a unique educational/instructional tool or as an industrial sensor.

#### Tech Fields

- [Analytical Instrumentation, Methods & Materials : Sensors](#)

For current licensing status, please contact Michael Carey at [mcarey@warf.org](mailto:mcarey@warf.org) or 608-960-9867