

The diagram illustrates a periodic potential $V_0 \sin(\omega t - \phi)$ in a fluid bulk above a substrate. The vertical axis is labeled V_0 . The horizontal axis represents the spatial coordinate. The potential is shown as a series of peaks and troughs, with the peaks labeled $V_0 \sin(\omega t)$, $V_0 \sin(\omega t - \pi/2)$, $V_0 \sin(\omega t - \pi)$, $V_0 \sin(\omega t - 3\pi/2)$, and $V_0 \sin(\omega t)$. The troughs are labeled $V_0 \sin(\omega t - \pi/2)$, $V_0 \sin(\omega t - \pi)$, $V_0 \sin(\omega t - 3\pi/2)$, and $V_0 \sin(\omega t)$. The distance between two consecutive peaks is labeled $L/4$. The fluid bulk is labeled "Fluid Bulk" and the substrate is labeled "Substrate". The potential is shown as a series of peaks and troughs, with the peaks labeled $V_0 \sin(\omega t)$, $V_0 \sin(\omega t - \pi/2)$, $V_0 \sin(\omega t - \pi)$, $V_0 \sin(\omega t - 3\pi/2)$, and $V_0 \sin(\omega t)$. The troughs are labeled $V_0 \sin(\omega t - \pi/2)$, $V_0 \sin(\omega t - \pi)$, $V_0 \sin(\omega t - 3\pi/2)$, and $V_0 \sin(\omega t)$. The distance between two consecutive peaks is labeled $L/4$. The fluid bulk is labeled "Fluid Bulk" and the substrate is labeled "Substrate".

Diagram illustrating a rotating disk electrode setup in a four-electrode microfluidic device. The central gray circle represents the rotating disk with radius r_0 . The electrodes are positioned around the disk, each applying a sinusoidal voltage:

- Top Electrode: $V_0 \sin(\omega t - \pi)$
- Bottom Electrode: $V_0 \sin(\omega t)$
- Left Electrode: $V_0 \sin(\omega t - 3\pi/2)$
- Right Electrode: $V_0 \sin(\omega t - \pi/2)$

The disk rotates with a tangential velocity $v = \omega r_0$, indicated by the curved arrow.

Electrode