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SUPPORTING INFORMATION

The impedance data can be transformed into complex capacitance. By combining Equations (1) and (4), one obtains

$$C(\omega) = \frac{1}{\omega [j \cdot Z'(\omega) + Z''(\omega)]}$$
(S-1)

We define the complex capacitance $C^*(\omega)$ as 1

$$C^*(\omega) = C'(\omega) - jC''(\omega) \qquad (S-2)$$

The real and imaginary values of the complex capacitance, $C'(\omega)$ and $C''(\omega)$, respectively, are calculated according to the following equations

$$C'(\omega) = \frac{Z''(\omega)}{\omega | Z(\omega)^2}$$
(S-3)

and

$$C^{\prime\prime}(\omega) = \frac{-Z^{\prime}(\omega)}{\omega |Z(\omega)|^2}$$
(S-4)

where $|Z(\omega)|$ is the impedance modulus.

$$|Z(\omega)| = \sqrt{[Z'(\omega)]^{2} + [Z''(\omega)]^{2}}$$
(S-5)



Figure S1: Schematic drawing of bucky-gel actuator.



Figure S2: Variation of K_{st} as a function of C_{max} .