Consider the hydrogel that has the smallest molecular weight (review the Module 11 Lecture). Use its material parameters from Lecture 11 and draw the graphs of $G'(\omega)$ and $G''(\omega)$ for $0 < \omega < 1\text{kHz}$.

From Lecture 11, slide 5, the parameters obtained by fitting the stress relaxation experiment results with the Maxwell-Weichert Model for the four alginate hydrogels are as follows:

Alginate Type:	**280 kDa**	**70 kDa**	**35 kDa**	**35 kDa – 5k PEG**
τ1 (s)	510	125	81	39
E1 (norm.)	0.25	0.46	0.5	0.58
τ2	11111	1734	900	637
E2	0.75	0.54	0.5	0.42

The 35 kDa hydrogel has the smallest molecular weight, and its model parameters are:

- Tau1 = 81
- E1 = 0.5
- Tau2: 900
- E2 = 0.5

Slide 4 of Lecture 11, gives the equations for the components of the complex modulus G:

G = G' + i G''

Where

- G' = E1 * ($Tau1^2$ w^2 / (1+ $Tau1^2$ w^2)) + E2 * ($Tau2^2$ w^2 / (1+ $Tau2^2$ w^2))
- G'' = E1 * (Tau1 w / (1+ $Tau1^2$ w^2)) + E2 * (Tau2 w / (1+ $Tau2^2$ w^2))
- w = 2 * Π * f

Using these equations for 0 < f < 1 kHz, we obtain the following plot: