

SESSION 6

Capacitance

$$C = Q/V$$

Parallel Plate

$$C = \frac{\epsilon_0 A}{d}$$

CoAx cable

$$\frac{C}{L} = \frac{2\pi\epsilon_0}{\ln\left(\frac{b}{a}\right)}$$

Sphere

$$C = 4\pi\epsilon_0 R$$

Energy Density in a
Electric Field

$$u = \frac{1}{2} \epsilon_0 E^2$$

Combination of Capacitors Series

$$C_{eq}^{-1} = C_1^{-1} + C_2^{-1} + C_3^{-1} + \dots$$

Parallel

$$C_{eq} = C_1 + C_2 + C_3 + \dots$$

Dielectrics

$$\epsilon_0 \rightarrow \mathbf{\epsilon} = \epsilon_0 \mathbf{k}$$

$$\mathbf{s}_{ind} = \mathbf{s} \left(1 - \frac{1}{\mathbf{k}}\right)$$