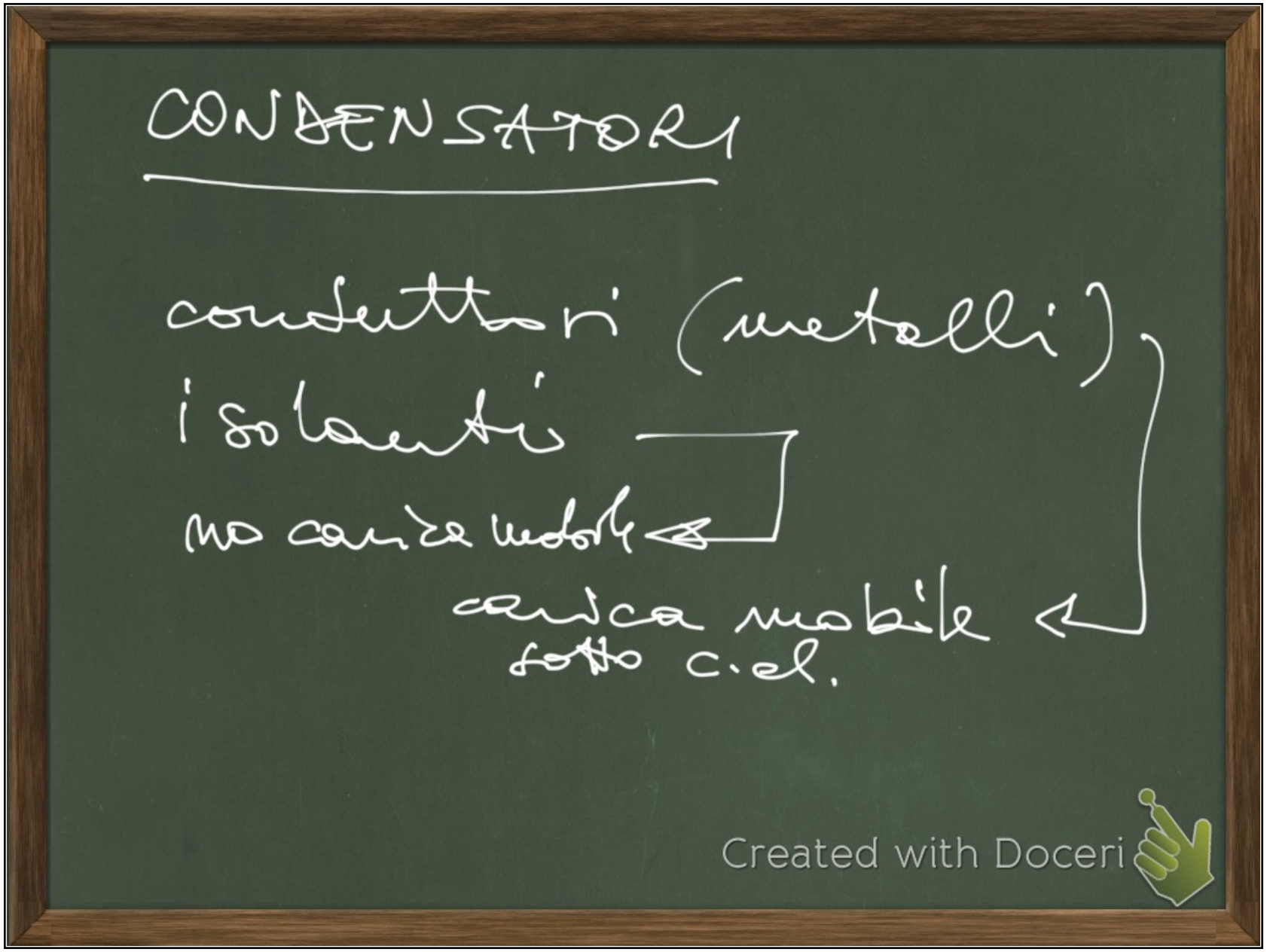
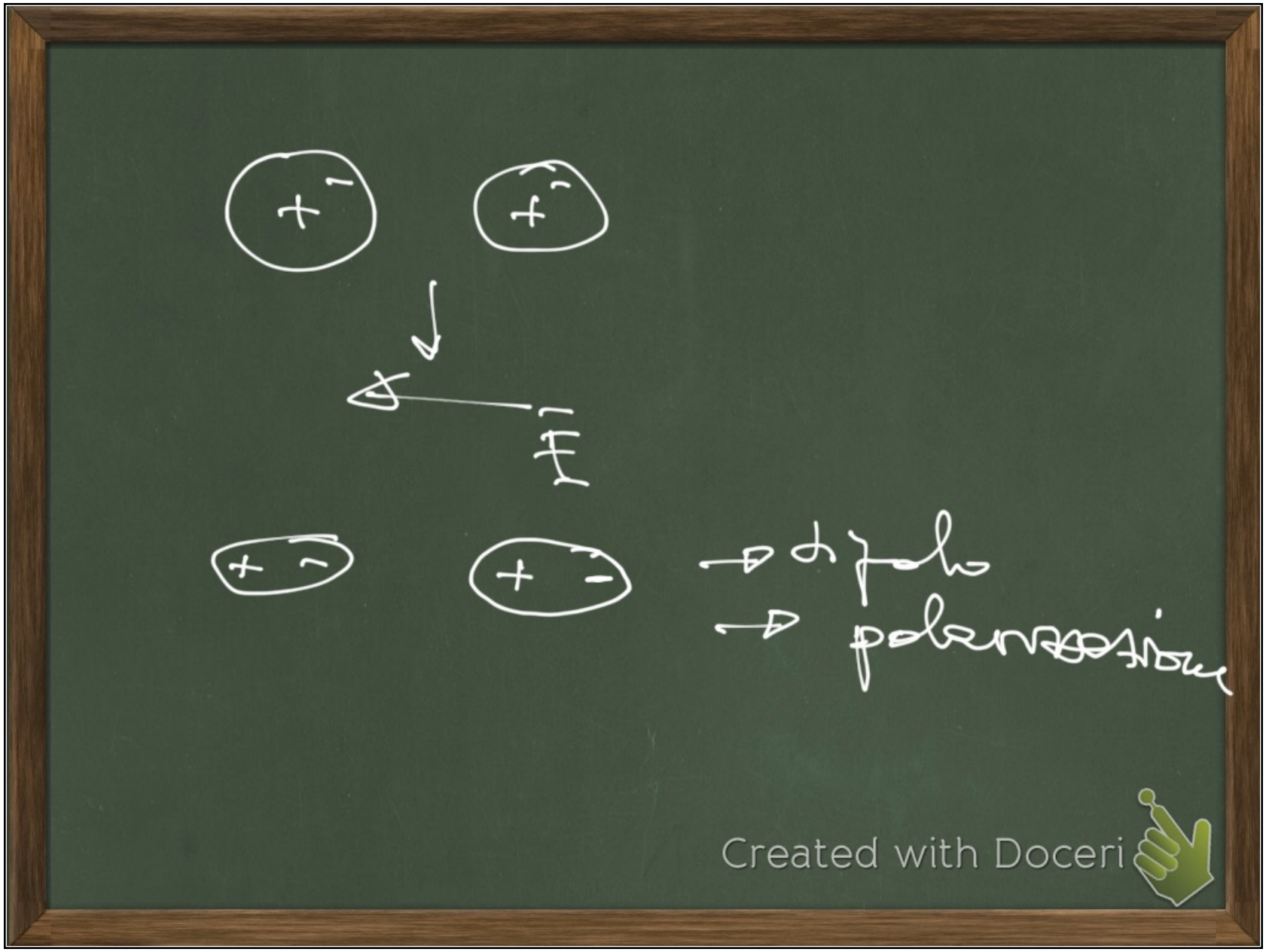

CONDENSATORI
conduttori (metalli)
isolanti
no carica mobile
carica mobile
sotto c.el.
Created with Doceri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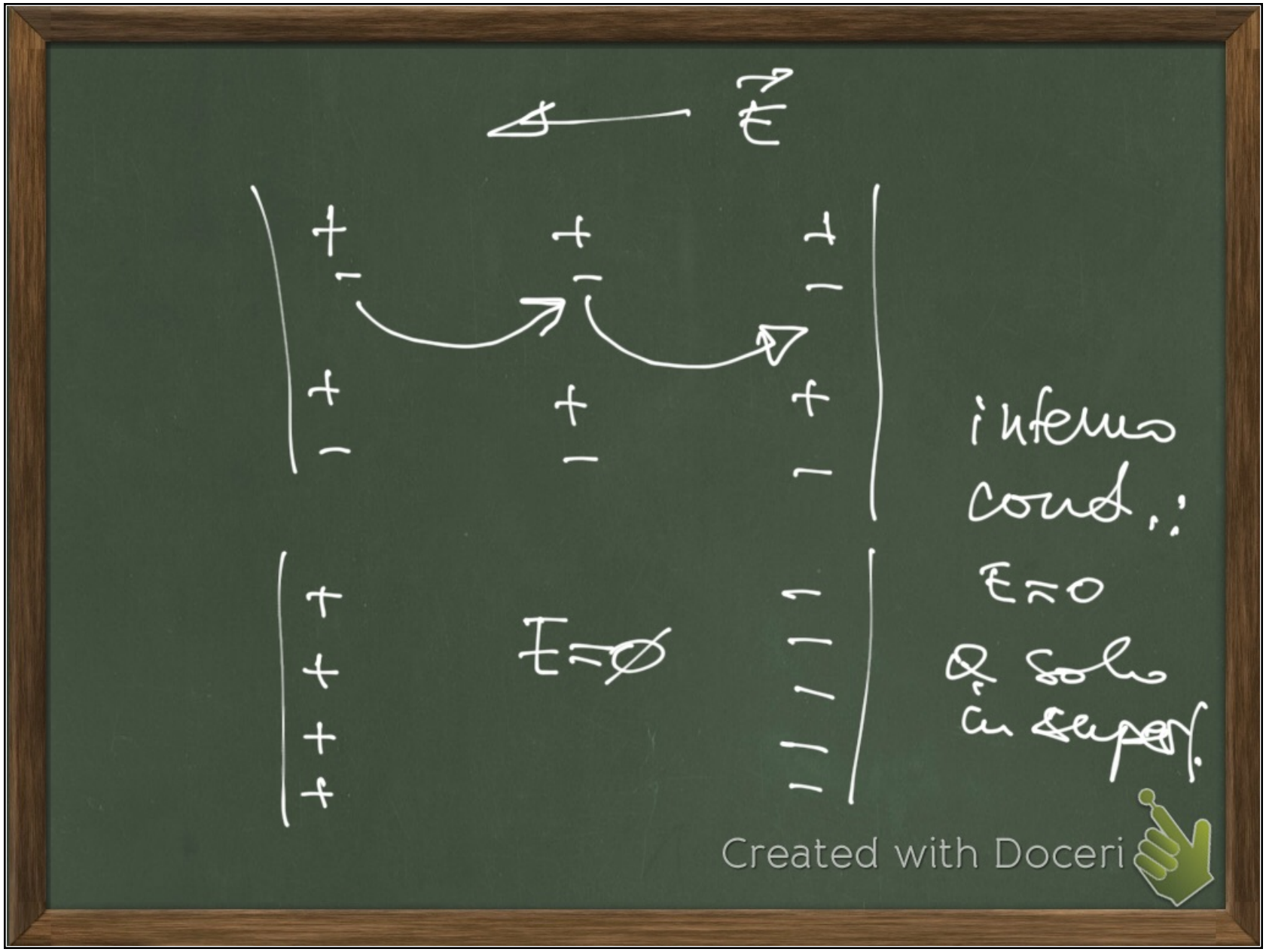
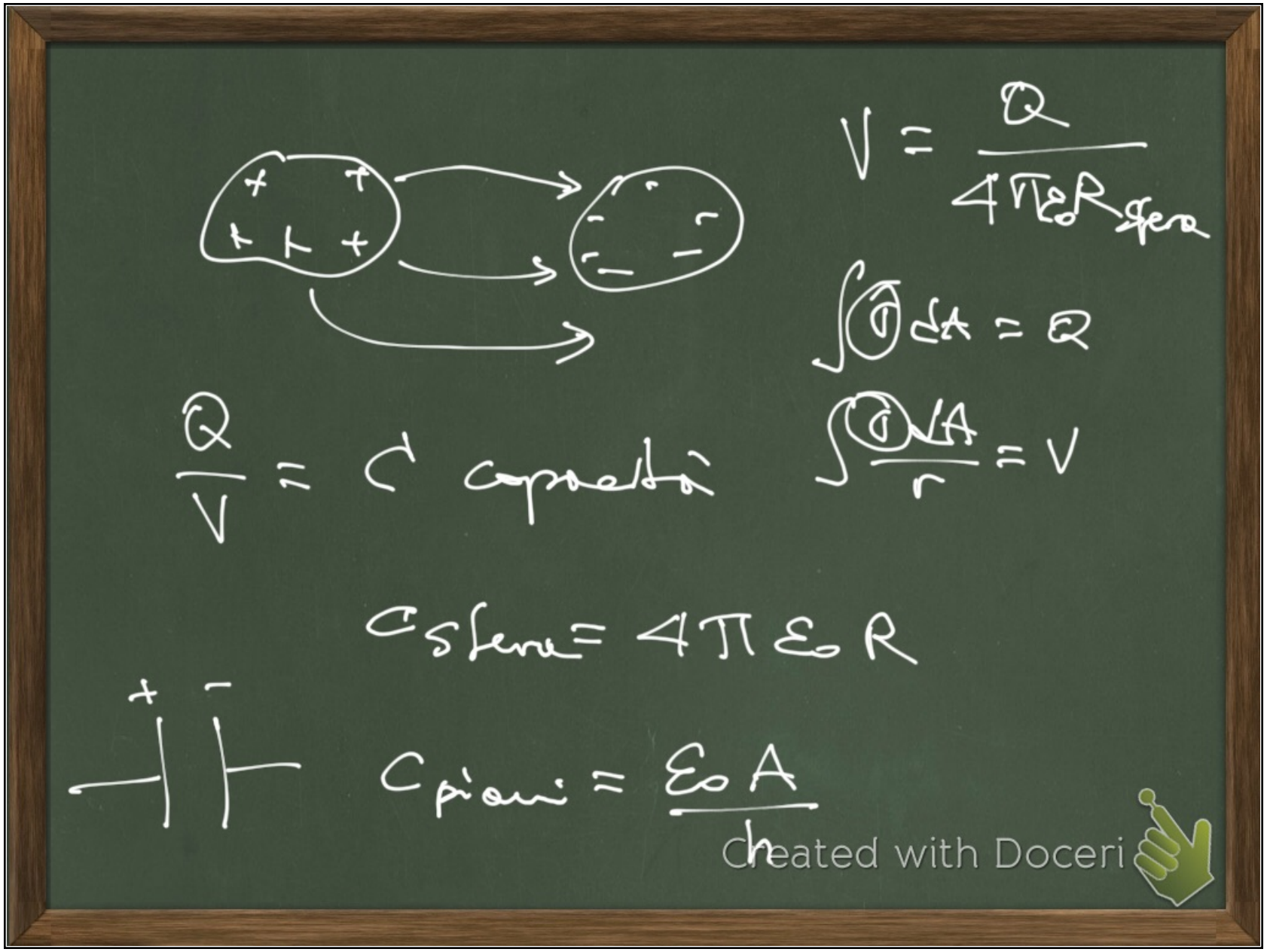
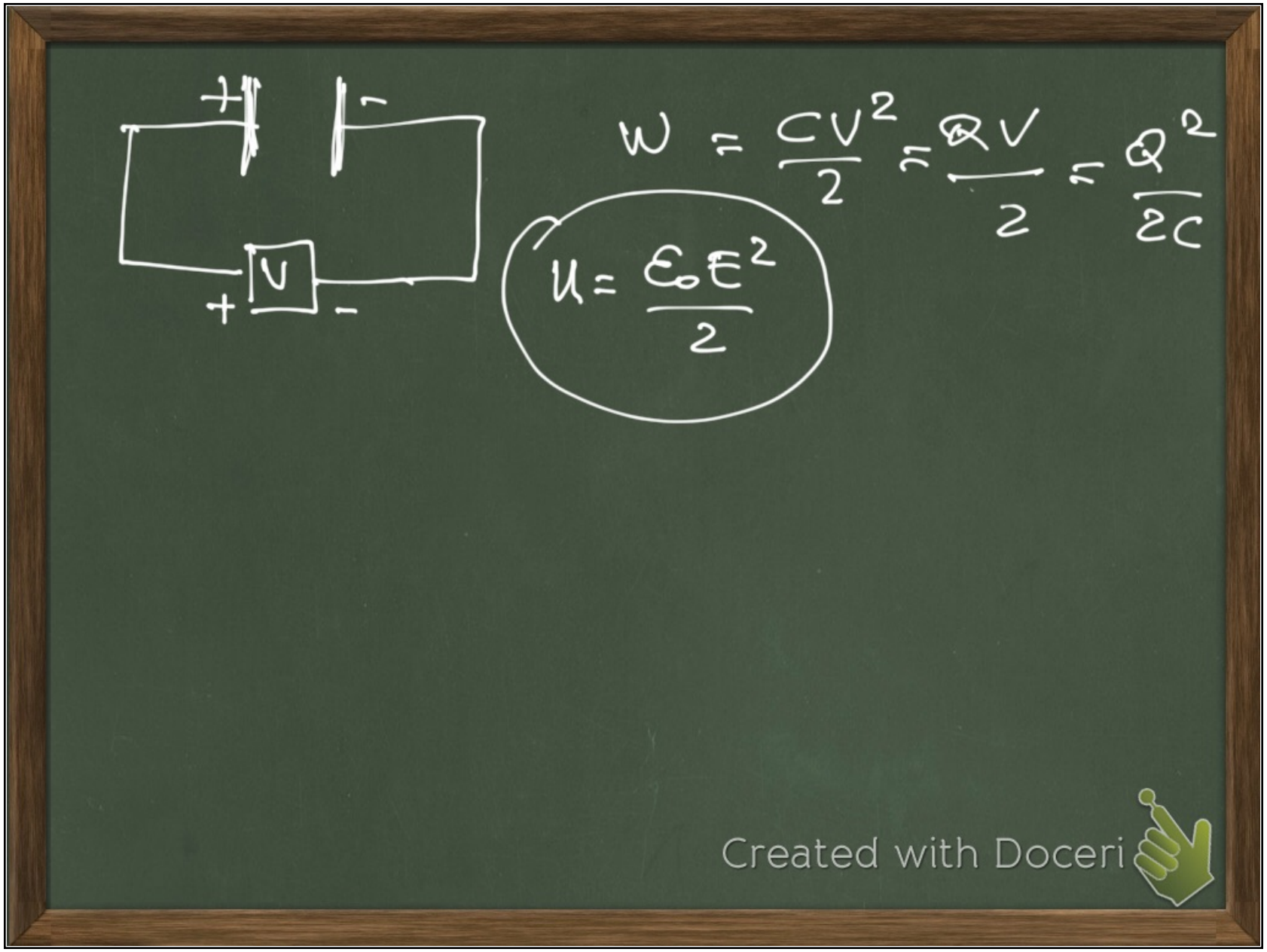
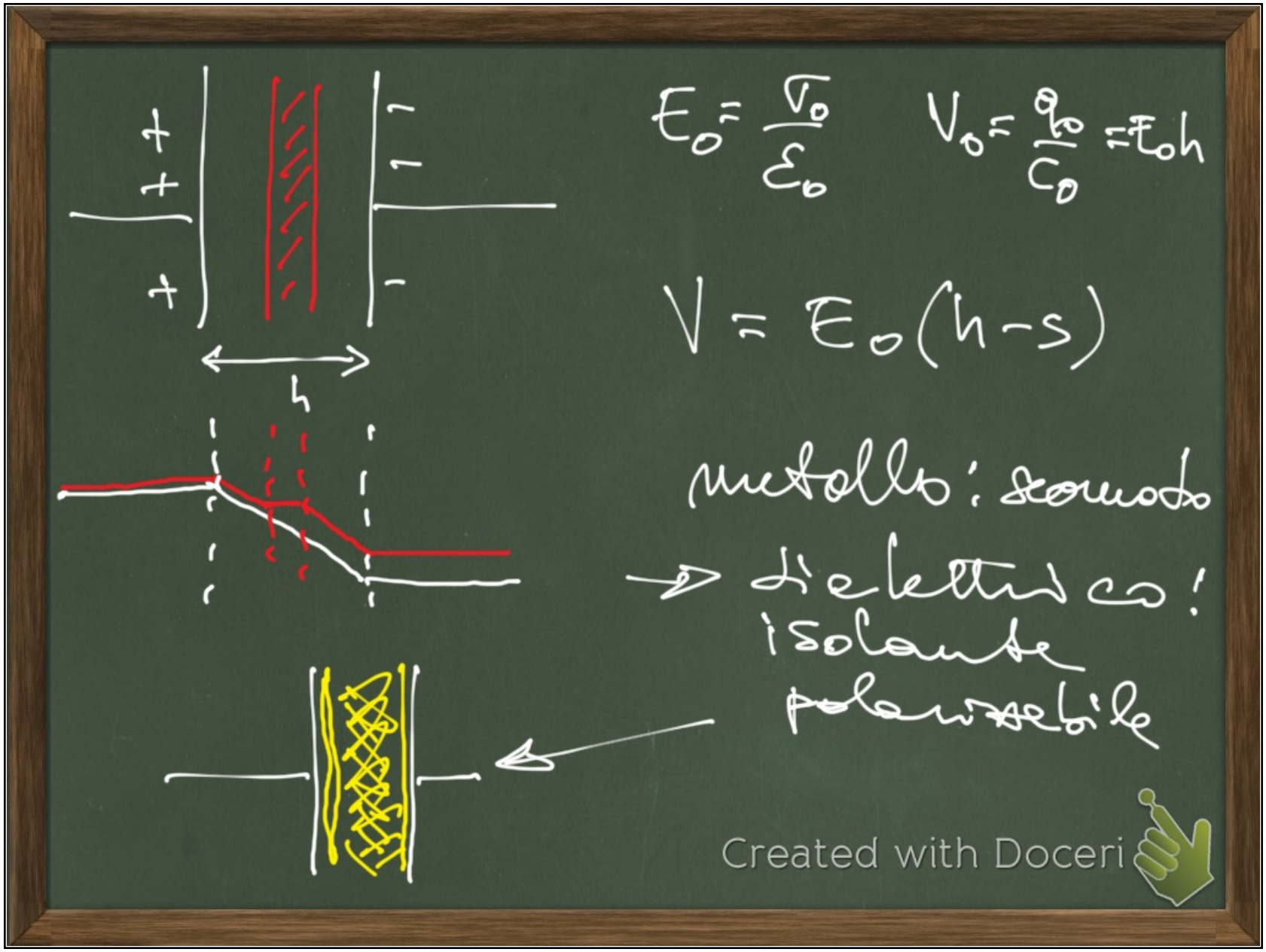
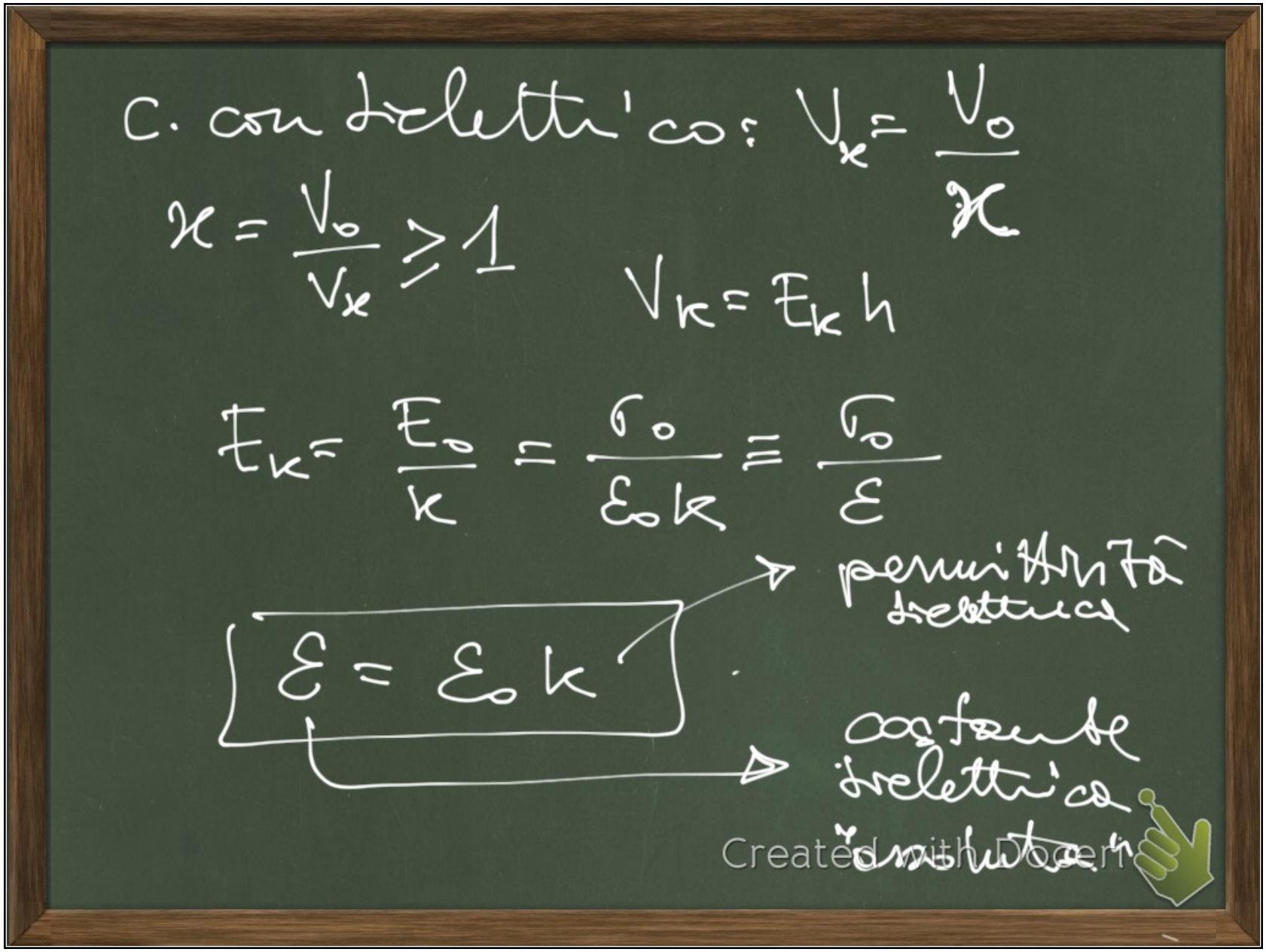

$\vec{E}$
$E=0$
$E=\emptyset$
Created with Doceri


V = Q / 4πε₀R sfera
∫σ dA = Q
Q/V = C capacità
∫ σ dA / r = V
C sfera = 4πε₀R
C piani = ε₀A / h
Created with Doceri


+
-
V
+
-
$W = \frac{CV^2}{2} = \frac{QV}{2} = \frac{Q^2}{2C}$
$u = \frac{\varepsilon_0 E^2}{2}$
Created with Doceri


$E_0 = \frac{\sigma_0}{\varepsilon_0}$
$V_0 = \frac{q_0}{C_0} = E_0 h$
$V = E_0 (h - s)$
metallo: scorrodo
→ dielettrico!
isolante
polarizzabile
Created with Doceri

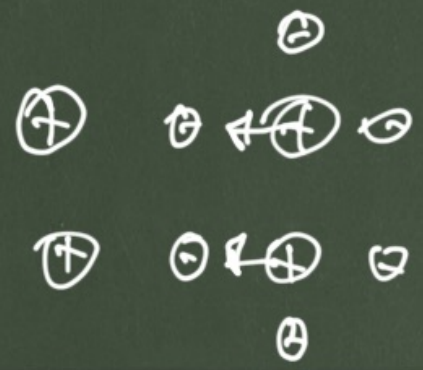

C. conduttrico: $V_k = \frac{V_0}{\kappa}$
$\kappa = \frac{V_0}{V_k} \geq 1$
$V_k = E_k h$
$E_k = \frac{E_0}{\kappa} = \frac{\sigma_0}{\varepsilon_0 \kappa} \equiv \frac{\sigma_0}{\varepsilon}$
$\varepsilon = \varepsilon_0 \kappa$
permittività elettrica
costante dielettrica
Created with Doceri

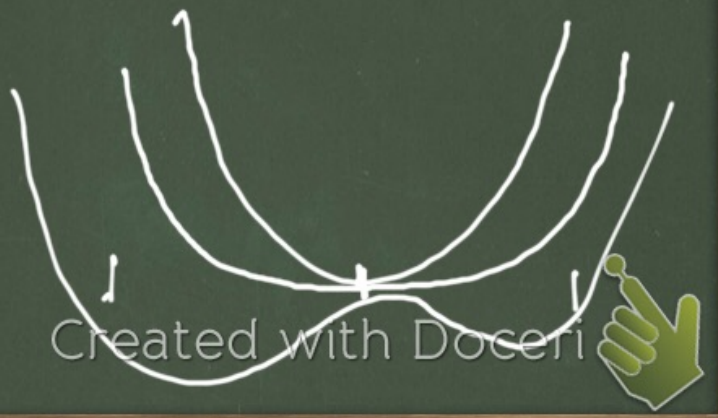
$\kappa_{acqua} = 80$

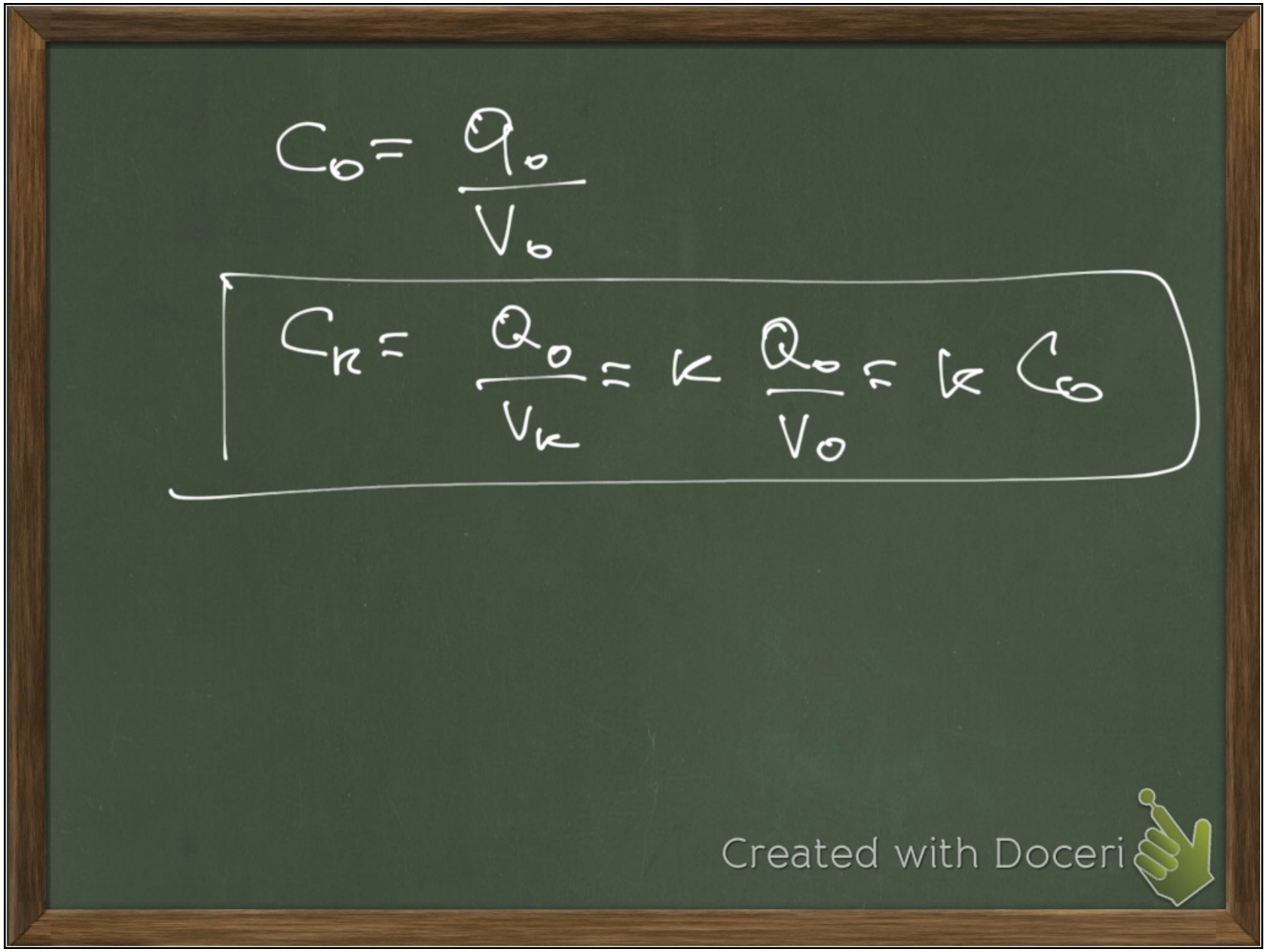
$\kappa_{silicio} = 12$

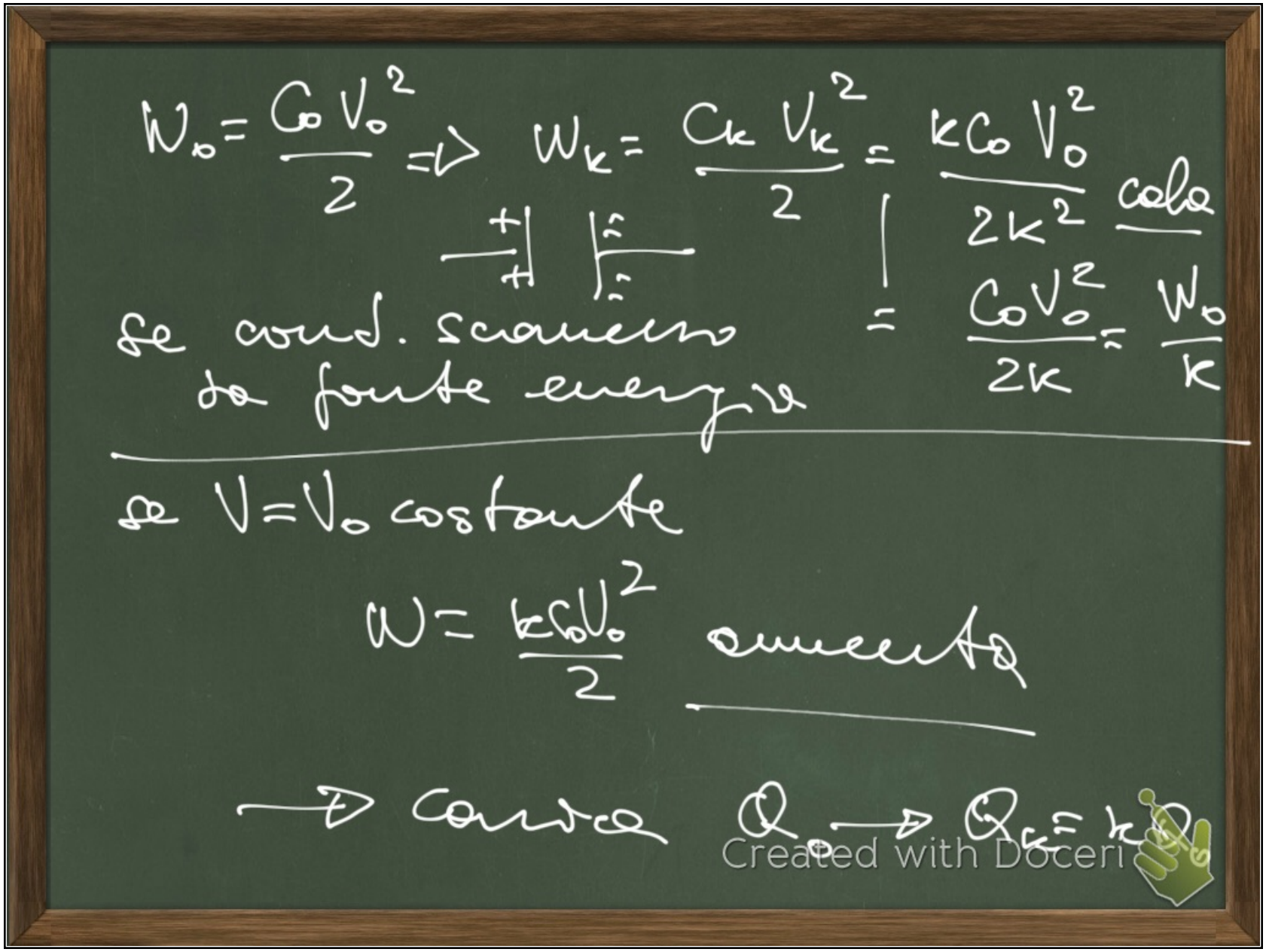
$\kappa_{vetro} \approx 2 \div 3$

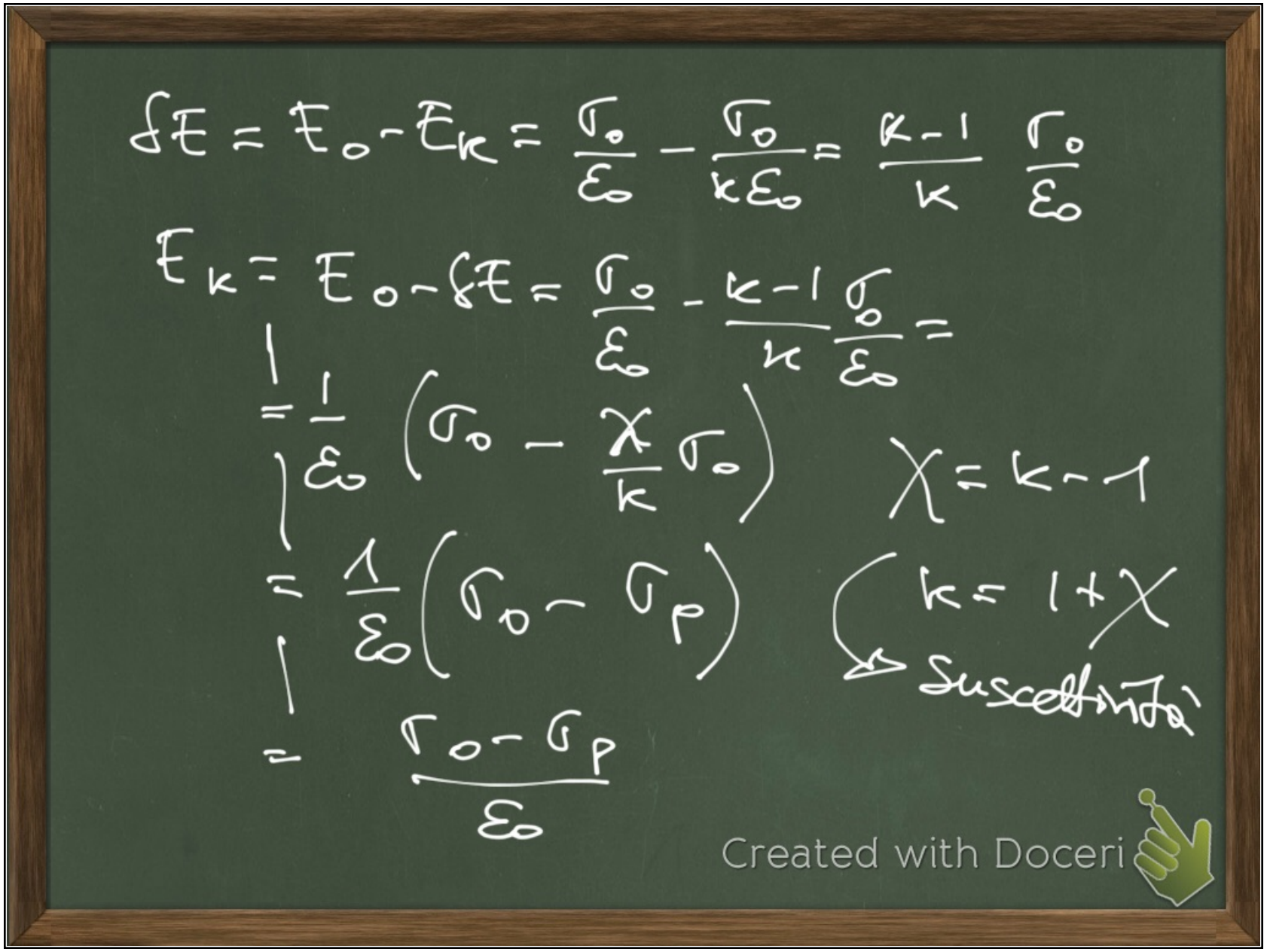
κ Ferroelettici ~ 1000

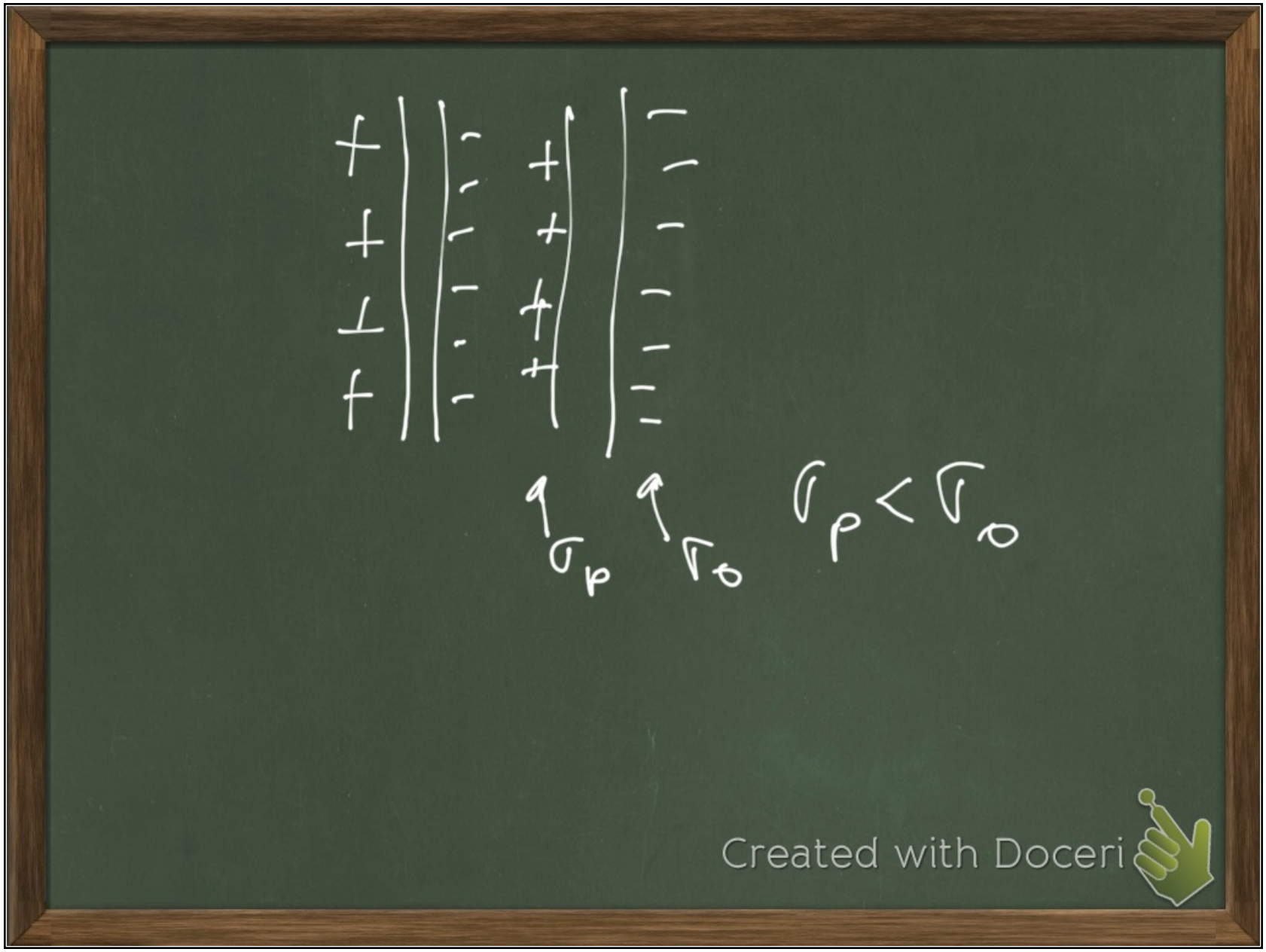


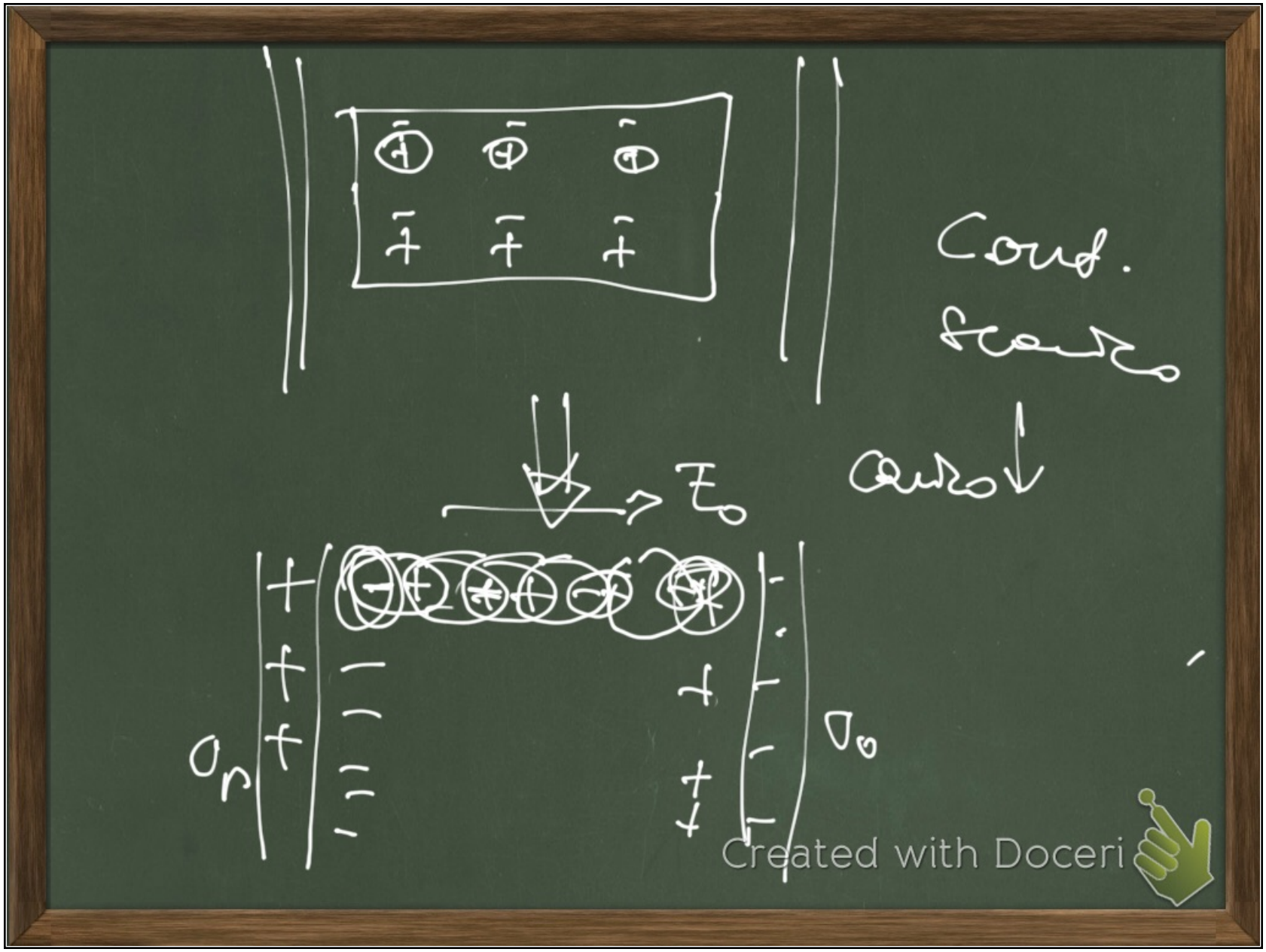


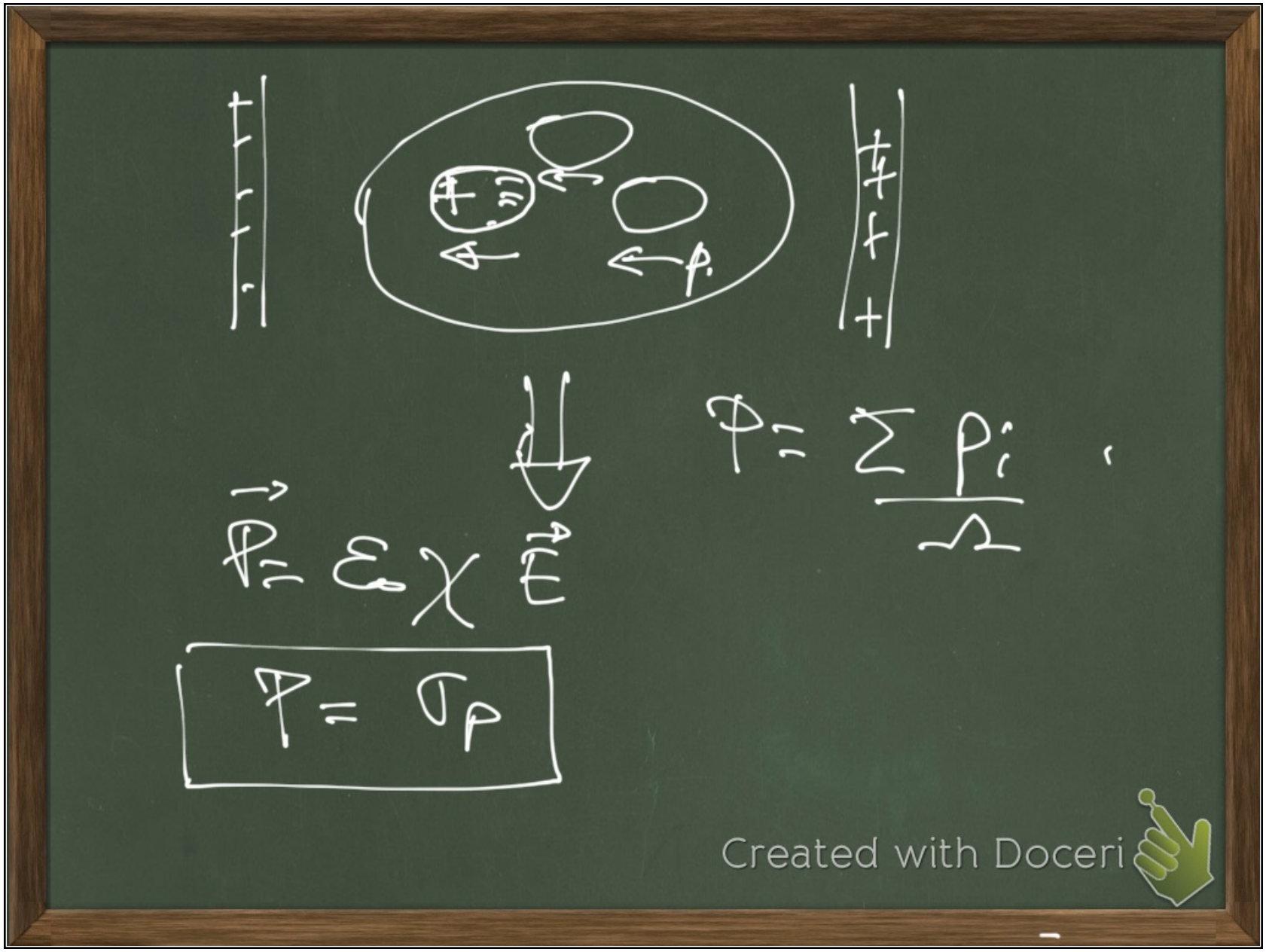

$C_0 = \frac{Q_0}{V_0}$
$C_K = \frac{Q_0}{V_K} = K \frac{Q_0}{V_0} = K C_0$
Created with Doceri

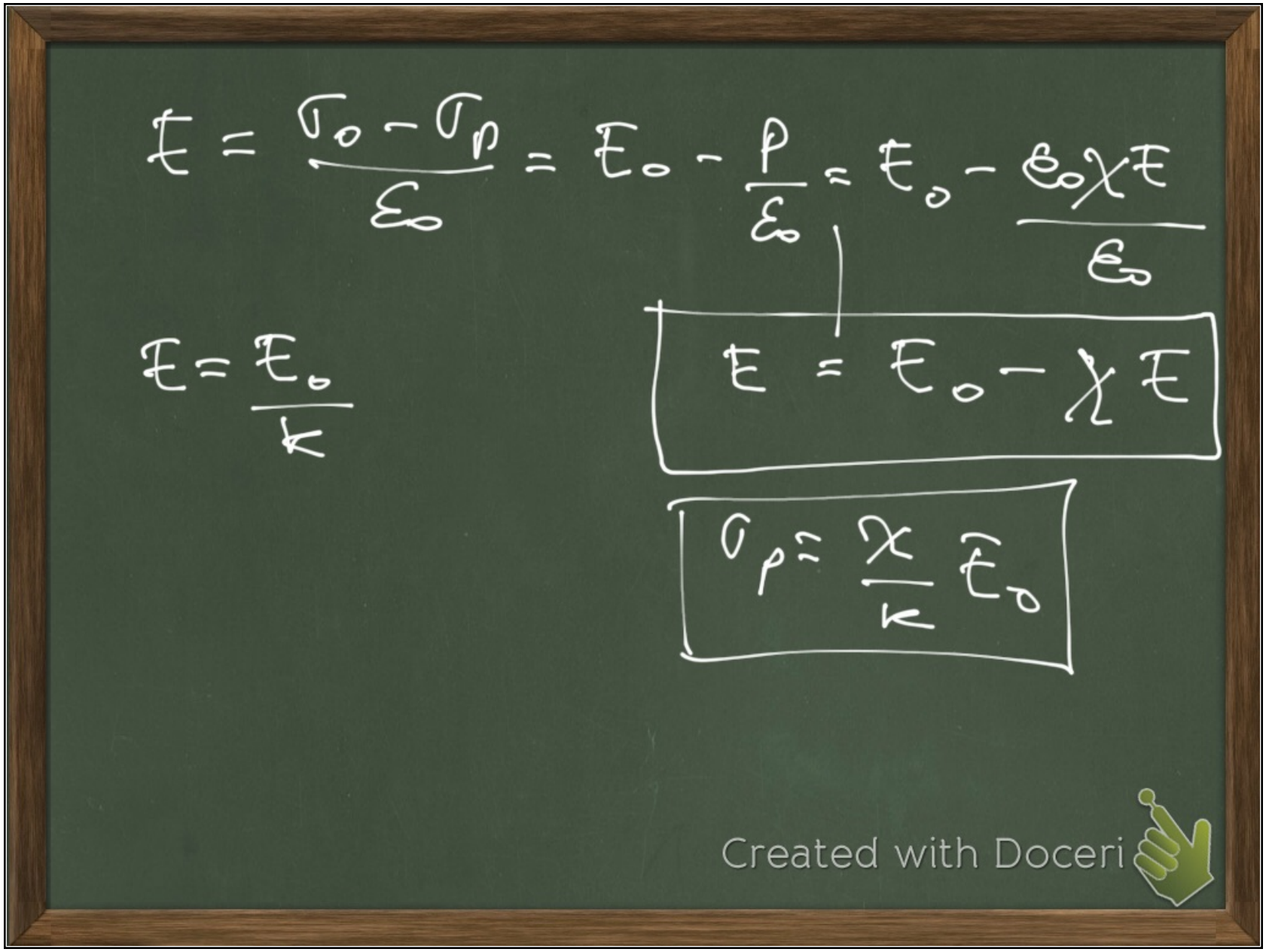

$U_0 = \frac{C_0 V_0^2}{2} \Rightarrow U_k = \frac{C_k V_k^2}{2} = \frac{k C_0 V_0^2}{2k^2}$ cala
$= \frac{C_0 V_0^2}{2k} = \frac{U_0}{k}$
se cond. scaricano da fonte energia
se $V = V_0$ costante
$U = \frac{k C_0 V_0^2}{2}$ aumenta
$\Rightarrow$ carica $Q \rightarrow Q_k = kQ$
Created with Doceri

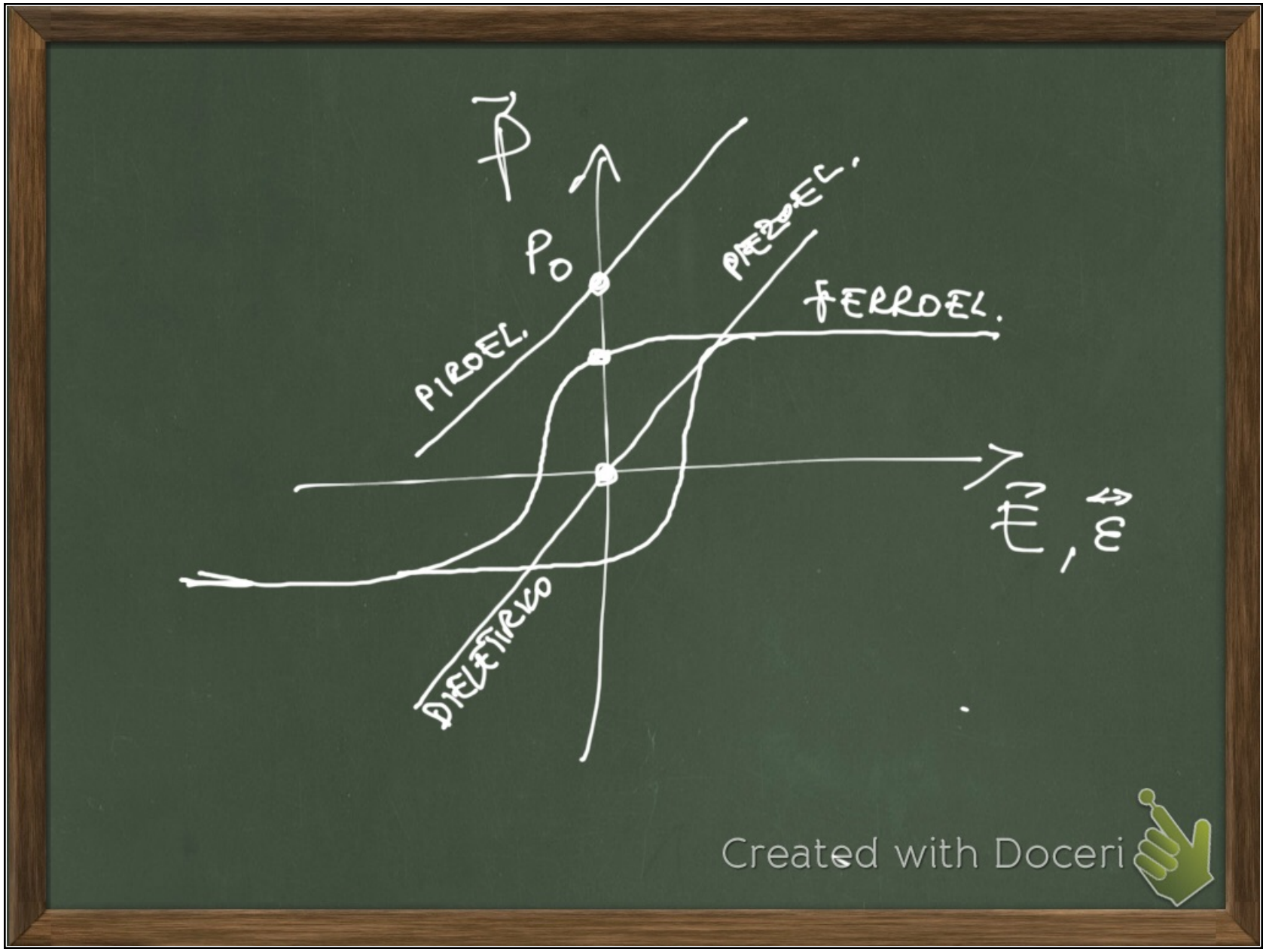

$\delta E = E_0 - E_K = \frac{\sigma_0}{\varepsilon_0} - \frac{\sigma_0}{K\varepsilon_0} = \frac{K-1}{K}\frac{\sigma_0}{\varepsilon_0}$
$E_K = E_0 - \delta E = \frac{\sigma_0}{\varepsilon_0} - \frac{K-1}{K}\frac{\sigma_0}{\varepsilon_0} =$
$= \frac{1}{\varepsilon_0}\left(\sigma_0 - \frac{\chi}{K}\sigma_0\right)$
$\chi = K - 1$
$= \frac{1}{\varepsilon_0}\left(\sigma_0 - \sigma_p\right)$
$K = 1 + \chi$
Susceptività
$= \frac{\sigma_0 - \sigma_p}{\varepsilon_0}$
Created with Doceri

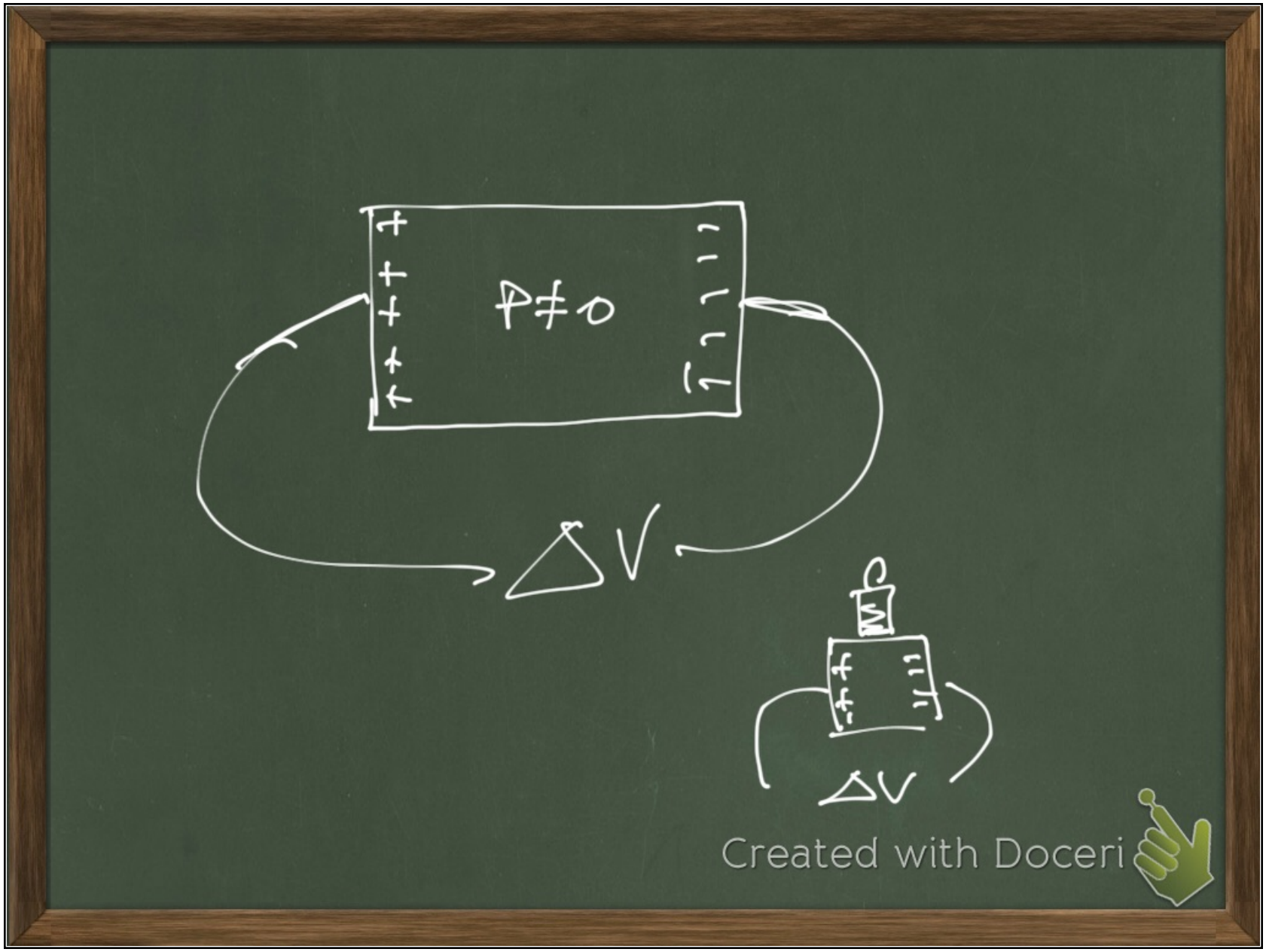

σ_p
σ_0
$\sigma_p < \sigma_0$
Created with Doceri


Cond.
Source
Current
E_0
σ_p
σ_0
Created with Doceri


Φ = Σ Pi
Φ = σ P
Created with Doceri


$E = \frac{\sigma_0 - \sigma_p}{\varepsilon_0} = E_0 - \frac{P}{\varepsilon_0} = E_0 - \frac{\varepsilon_0 \chi E}{\varepsilon_0}$
$E = \frac{E_0}{K}$
$E = E_0 - \chi E$
$\sigma_p = \frac{\chi}{K} E_0$
Created with Doceri


P
P_0
PIROEL.
PIEZOEL.
FERROEL.
DIELETTRICO
$\vec{E}, \vec{\varepsilon}$
Created with Doceri


P≠0
ΔV
ΔV
Created with Doceri