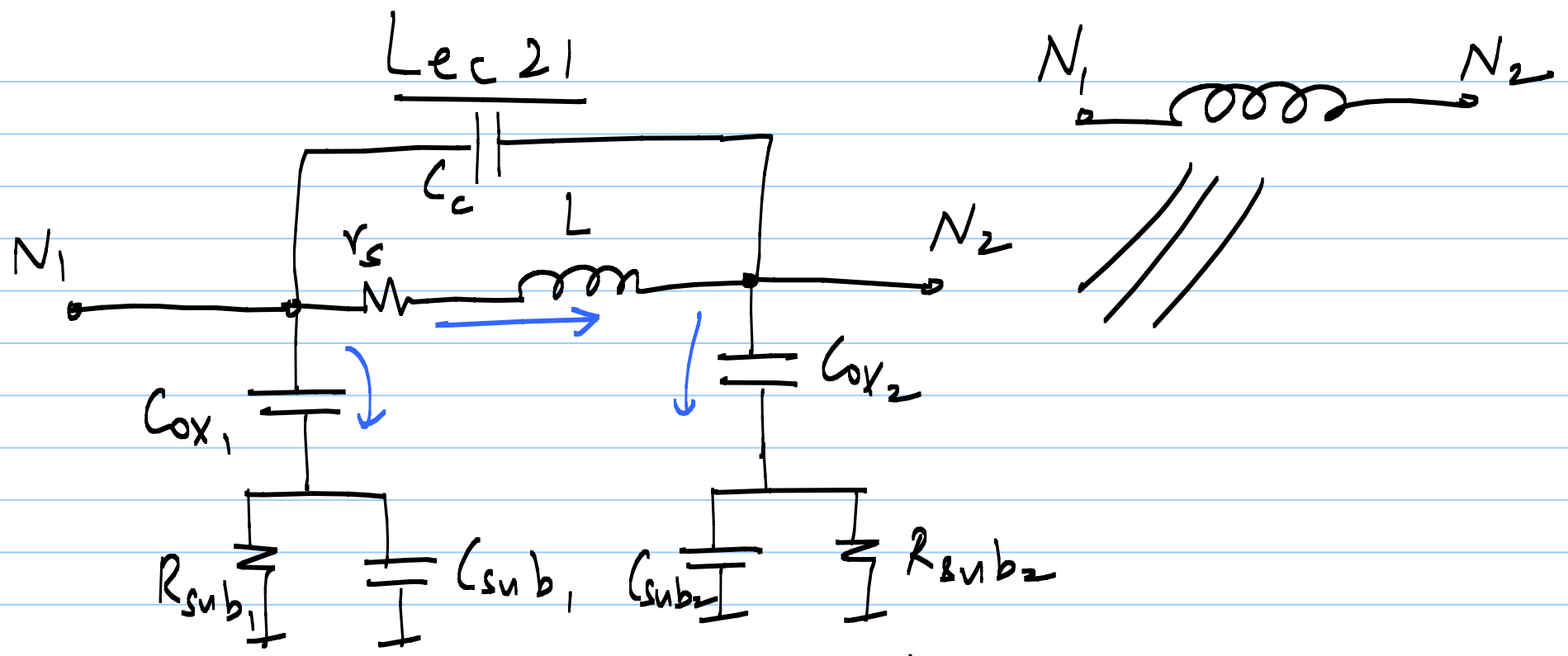


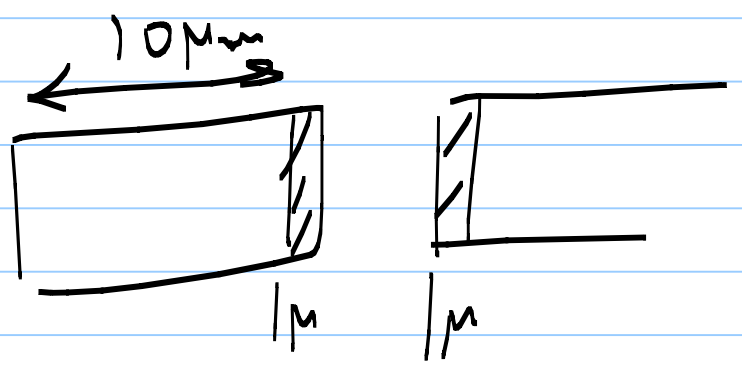
4/3/20

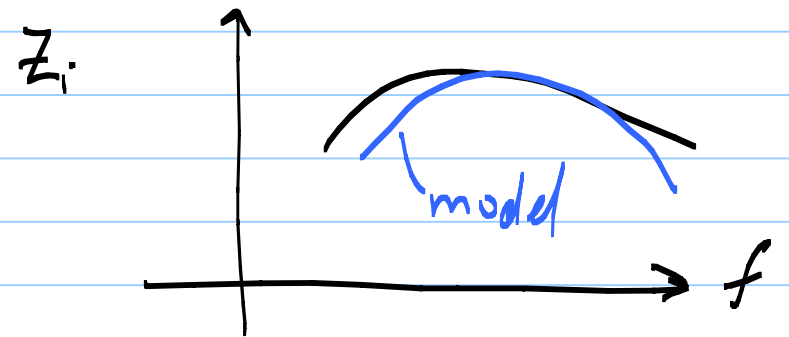
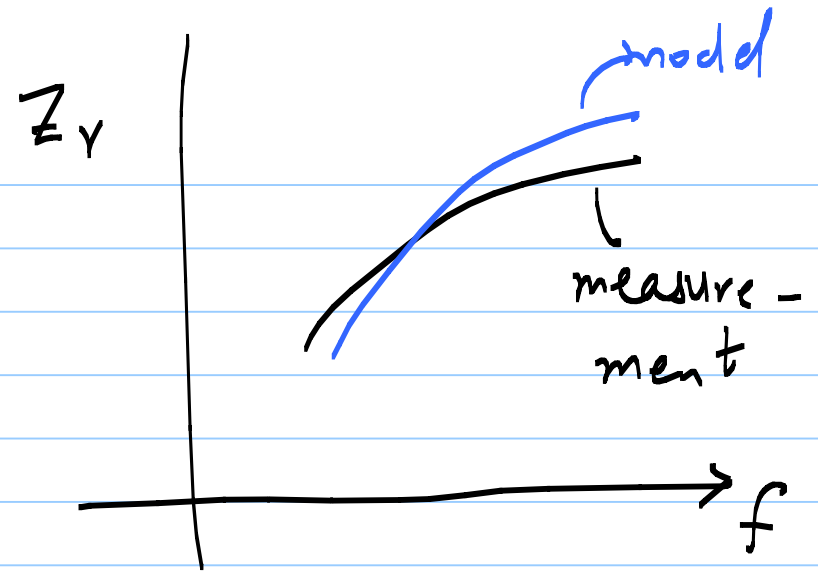
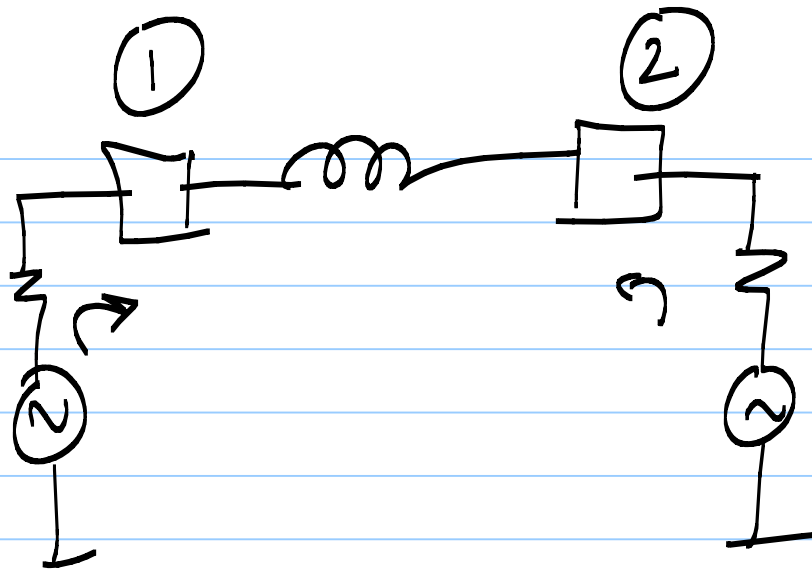
Lec 21



Parameters

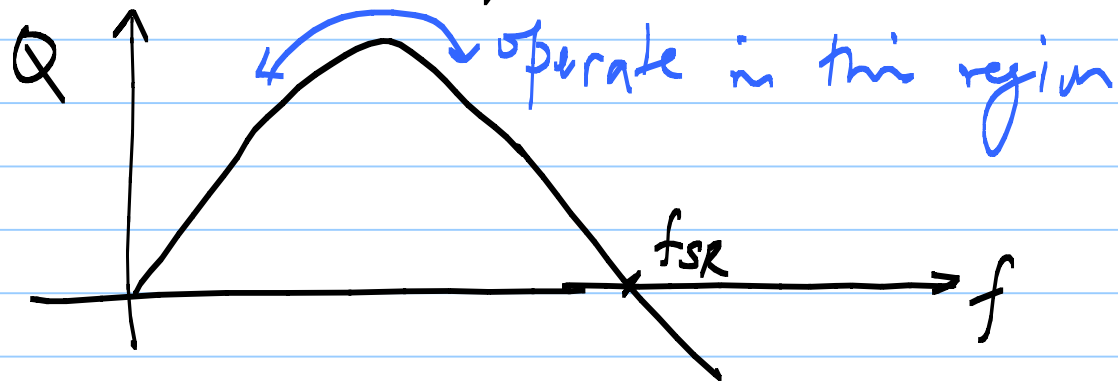
- 1) L
- 2) Area
- 3) Q
- 4) fSR (SRF)  
self resonance frequency

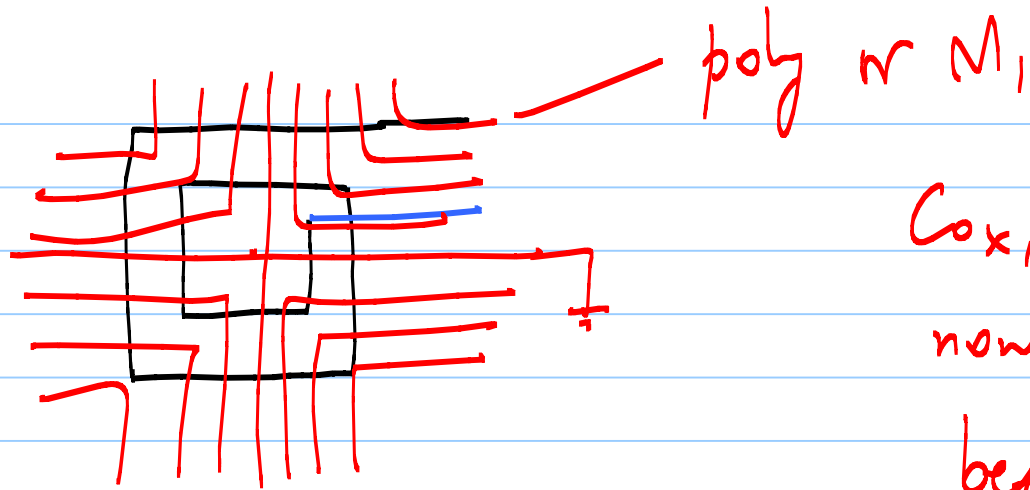




\*  $f_{SR} \gg f_0 \quad (\sim 10x)$

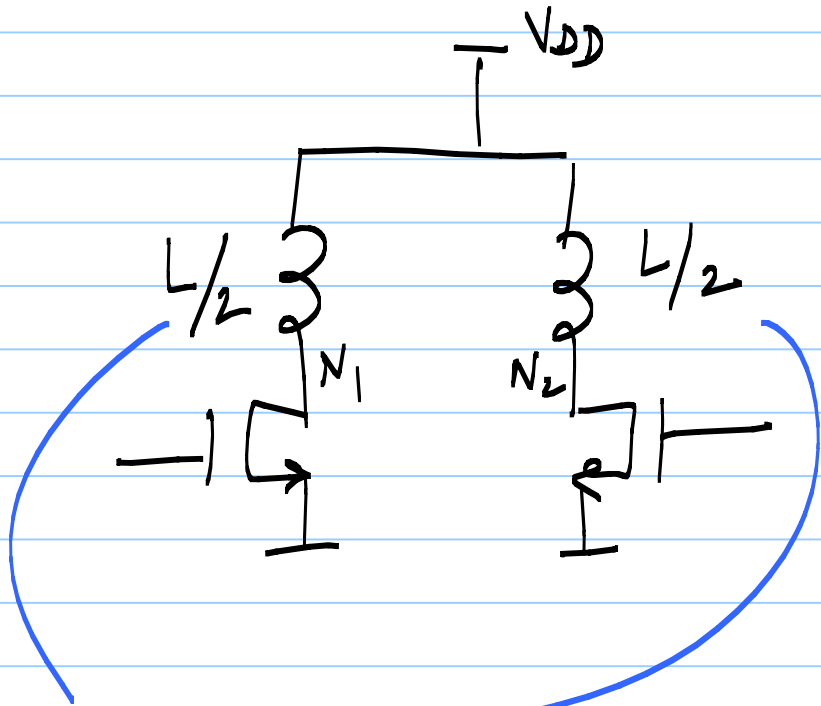
\*  $Q = \frac{\text{Im}(Y)}{\text{Re}(Y)} = \frac{\text{Im}(Z)}{\text{Re}(Z)}$



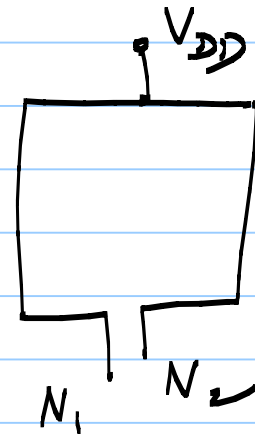


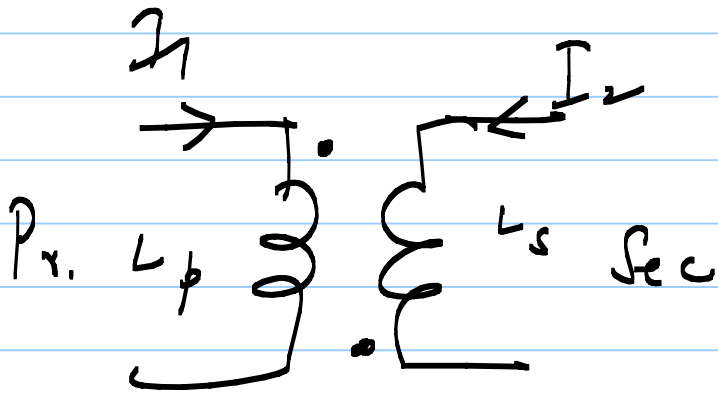
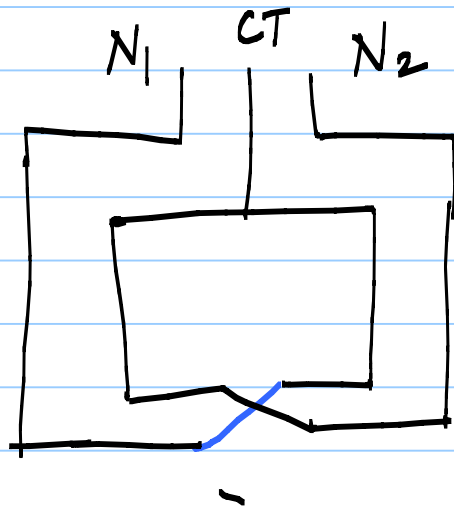
$C_{ox1}, C_{ox2}$  are now larger than before

- \*  $f_{SR}$  is lower
- \*  $Q$  is higher,  $R_{sub}$  is higher



need to be symmetric





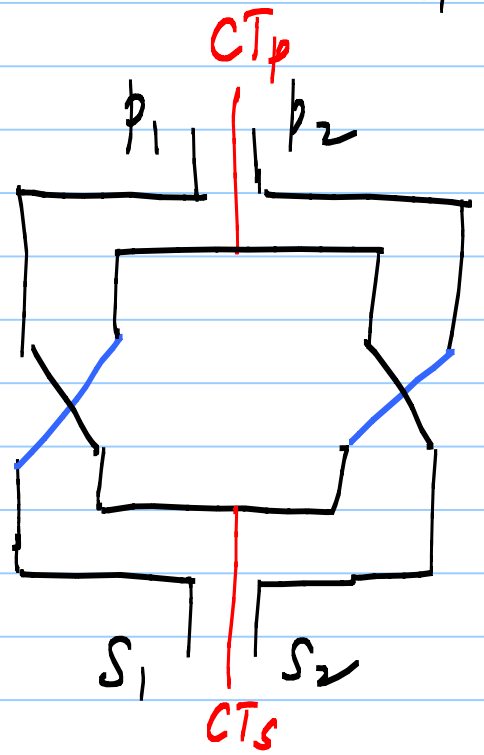
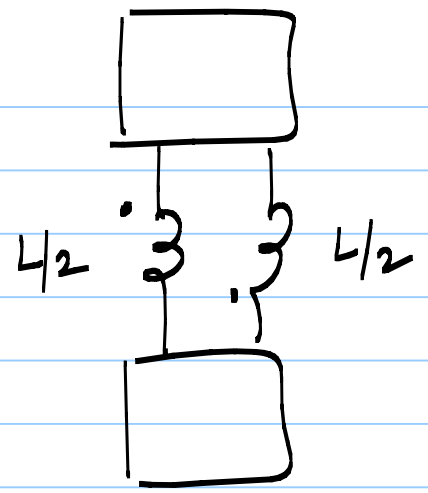
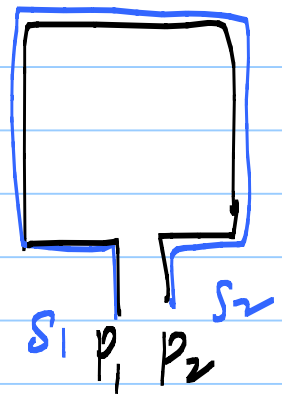
$$I_1 = -I_2$$

$$L_{\text{eff}_p} = L_p + M$$

$$L_{\text{eff}_s} = L_s + M$$

resistances stay the same  $\Rightarrow Q$  increases

Vertical transformer  
(asymmetric)



planar Xfmr  
(symmetric)

$n=1$ , symmetric

