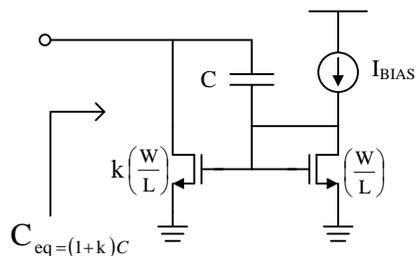


HOMEWORK ASSIGNMENT #5

Prob. 1. Consider the design of an amplifier fully balanced, fully symmetric using single ended amplifiers for a gain of 2. The FB, FS, FD amplifier must meet the same specs of HW#4, Prob. 1. Summarize your results in a table form comparing your results with the FD amplifier of HW#4 Prob. 1 in open loop as well as for a gain of 2. Discuss your results and which one of the two is better and why.

Problem 2. A simple capacitor multiplier can be implemented as shown below.



Using a fully balanced, fully symmetric topology

- Design a floating capacitor multiplier with the properties of a FB, FS circuit. Let $k=16$
- Propose a FB, FS negative capacitor multiplier using current mirror as a core. Simulate your design and summary your results for $k=16$.

Verify through simulations that indeed the circuit is FB, FS.

Problem 3. In the notes we discussed how to convert a pseudo differential inverter into a FB, FS fully differential amplifier using feed forward. Propose an equivalent FB, FS voltage amplifier by using as a core a single-ended two stage amplifier with Miller compensation. This problem is optional.

My family is everything. I am what I am thanks to my mother, my father, my brother, my sister... because they have given me everything. The education I have is thanks to them.

Ronaldinho