UNIVERSITÄT PADERBORN
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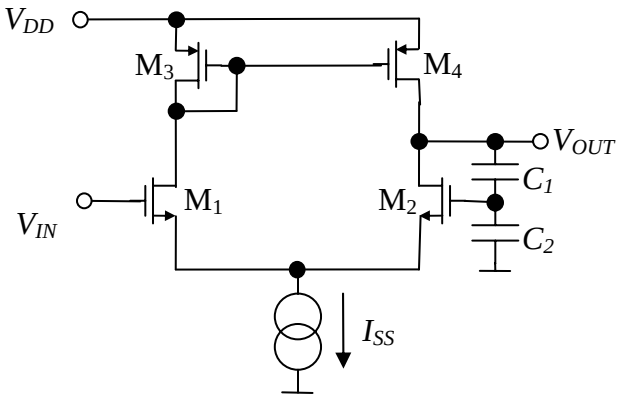
FAKULTÄT FÜR ELEKTROTECHNIK, INFORMATIK UND MATHEMATIK

High-Frequency Electronics
Prof. Dr.-Ing. Andreas Thiede

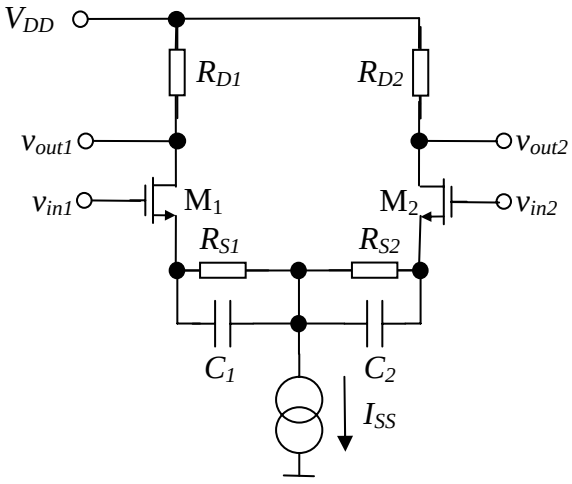
Analog CMOS Integrated Circuits

Exercise 10: Feedback, Stability

1. What feedback topology is implemented in the depicted amplifier ?
   Determine the gain and output impedance at low frequency, i.e. capacitors C_1 and C_2 may not consideribly load the output !



2. What feedback topology is implemented in the depicted amplifier ?
   Describe quantitatively the main purpose of the feedback in this circuit !



3. An amplifier may be described by a 3rd order low-pass transfer function with a DC gain of 60 dB , a double pole at 10 MHz and a third pole at 100 MHz. This amplifier has to be fed back by an RC low-pass of 1st order. The closed loop DC gain should be 20 dB. What maximum corner frequency of the feedback circuit will still enable stability of the system ?