Electronics II

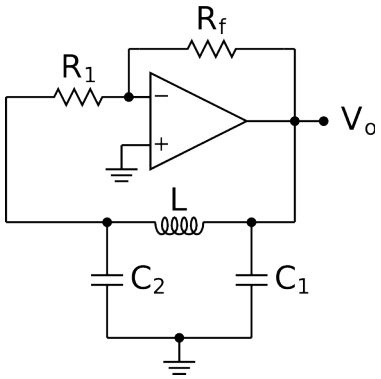
2010-2011 mod. 4

Colpitts Oscillator

P. Stallinga

UAlg UNIVERSIDADE DO ALGARVE 30 anos 1979 | 2009

MIEET 3º ano



The above circuit is a Colpitts Oscillator. It consists of an ideal opamp with negative feedback composed of R1 and Rf, and a branch with positive feedback, composed of two capacitors and an inductor.

- What is the gain *A* of the circuit composed of the opamp and the two resistors R1 and Rf?
- Analyze the circuit and determine the Barkhausen Criterion for oscillation. (Note: include an output resistance R of the opamp)
- Give values for the components to get a pure sinusoidal oscillation at 10 kHz.