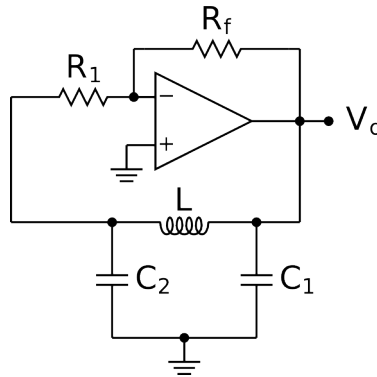


Electronics II

Colpitts Oscillator

P. Stallinga



The above circuit is a Colpitts Oscillator. It consists of an ideal opamp with negative feedback composed of R_1 and R_f , 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 R_1 and R_f ?
- 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.