You are to write a short paper on a particular topic related to your major project. The purpose is to go into somewhat more depth on that topic than we are able to in class, and at the same time, to reinforce the background component associated with the work you are doing for the major project. The paper should be 4 to 5 typewritten pages long and should reference at least 3 journal articles. The topic should be selected and approved by the instructor. Example topics include:

- diode mixers
- fractional N frequency synthesizers
- beam steering or beam forming antennas
- SAW filters
- SAW resonators
- SAW correlators
- TWT amplifiers and oscillators
- solid state power amplifiers
- surface mount techniques and devices
- I,Q mixers
- image reject mixers
- single sideband mixers
- delay lock loops
- specialized processing circuits (discuss with instructor first)
- phase modulators or demodulators
- frequency multiplexers
- Rake receivers
- frequency hopping
- filters (various types so discuss with instructor first)
- antennas for mobile units
- power sources for mobile units
- low noise amplifiers
- phase noise in oscillators
- automatic gain circuits
- automatic frequency control circuits
- frequency modulators and demodulators
- single sideband modulators and demodulators
- techniques for real-time software demodulation of noisy signals
- real-time interpolation, decimation filtering techniques
- sigma-delta A/D conversion