Homework II

1. (40%) Consider that an MS with a velocity v receives an unmodulated carrier with a frequency f_c. The incidence angle $\theta(t)$ of the incoming wave is assumed to be uniformly distributed between $-\pi$ and π.
   a) If v = 20 km/hr and f_c = 2 GHz, find the distribution function (cdf) and the probability density function (pdf) of the observed Doppler shift via simulation.
   b) If v = 90 km/hr and f_c = 26 GHz, find the cdf and the pdf of the observed Doppler shift via simulation.
   c) If f_c = 2 GHz and v is uniformly distributed between 20 km/hr and 90 km/hr, find the cdf and the pdf of the observed Doppler shift via simulation.
   d) Derive the cdf and the pdf of the observed Doppler shift for fixed v and f_c. Compare the simulation results with the theoretical results.

- 助教: EECS Room 605, TWNTHUCOM5170@gmail.com
- Due Date: **10/22** (You shall mail both your report and your program to the class mail account.)