# 610 Fall 2014 – Homework 6 Due Th 10/16/14

1. (60 points, maximally flat transfer functions)
   Consider again the degree 4 low pass maximally flat transfer function, T(s), normalized so that the gain is 1 at dc and the lead denominator coefficient is also 1
   a) Factor T(s) into two degree two transfer functions. Give the Q's and $\omega_o$'s of the two sections.
   b) Denormalize so that the normalized $\omega=1$ becomes $\omega=2\pi 10^4$. Use the TI UAF42 to realize the resulting LP Vo(s)/Vi(s) transfer function. Submit the Spice circuit with element values and an AC magnitude run using AD741 op-amps (in the OPAMP library of PSpice)..

2. (40 points, PR property)
   For the degree 2 rational input admittance
   $$y(s) = [s^2 + as + 1]/[s^2 + 2s + b]$$
   a) Determine for which values of the real constants a and b this admittance is PR. Is there a relationship between a and b?
   b) For each PR y(s) give the zeros and poles. Can any be on the $j\omega$ axis?