% First Order Shelving Low Pass Filter with gain 20dB

% Born June 22 -> f\_crit = 6.22 Hz @ -3dB

f\_crit = 6220; j = sqrt(-1); fp = f\_crit; C = 0.000000015;

K = (10^(20/20)); Kh = (10^(6/20));

tp = 1/(2\*pi\*fp);

Rf2 = tp/C; R = Rf2./(K-Kh); Rf1 = R\*(Kh-1);

tz = (Kh/K)\*tp;

fz = 1/(2\*pi\*tz);

f\_start = 100; f\_stop = 1000000;

step = (f\_stop - f\_start)/4096;

freq = f\_start:step:f\_stop;

Tf = K.\* (1.+j.\*freq./fz)./(1.+j.\*freq./fp);

Ms = 20\*log10(abs(Tf));

Ps = (180/pi)\*angle(Tf);

semilogx(freq,Ms),grid

figure

semilogx(freq,Ps),grid

