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Script for 2011 ME227 HW 4 Problem 3

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3(a) Linearization about left-hand drift equilibrium w/ controller

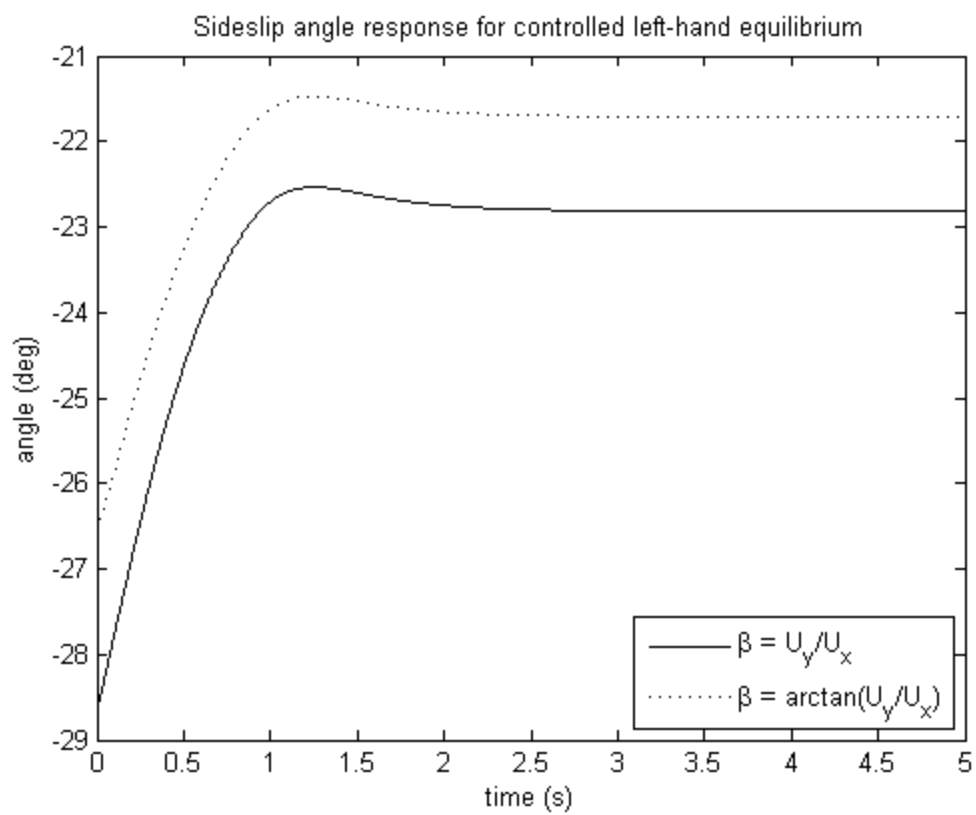
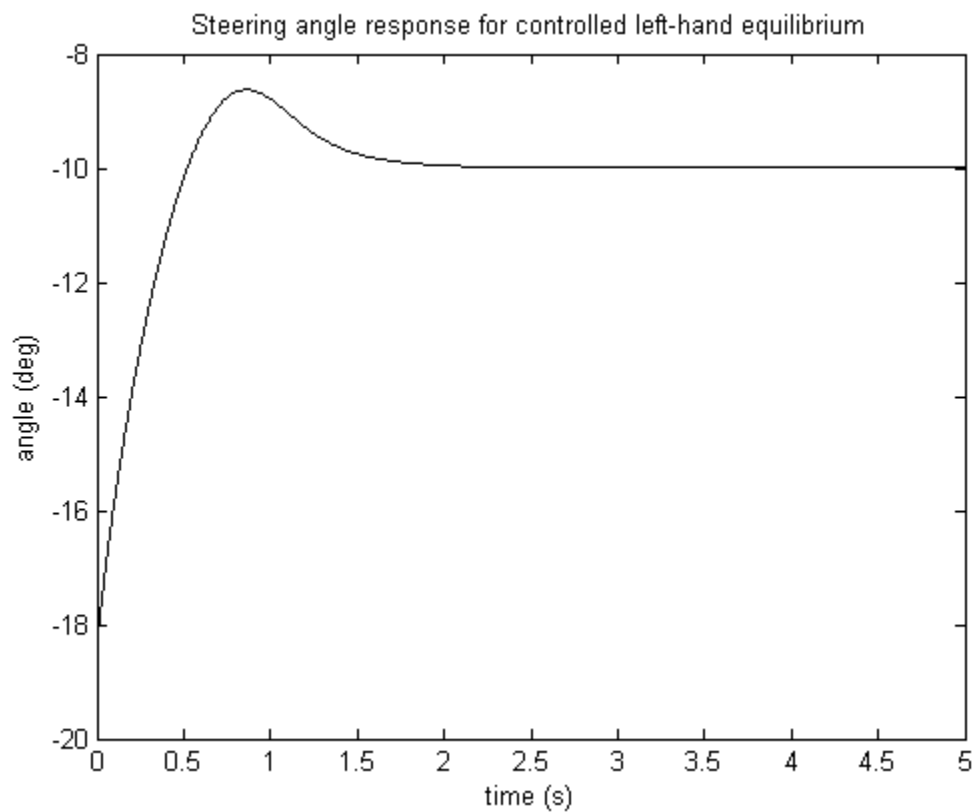
We use the state space equation in the Phase Plane Analysis notes, substituting $-K[\delta_\beta \delta_r]'$ for δ_δ . Note that we must compensate for the expression being written in terms of δ_β as follows: $A = [a \ bU_x; c/U_x \ d]$ and $B*K = [e*U_x \ f*U_x; g \ h]$. Substituting, we get the following eigenvalues

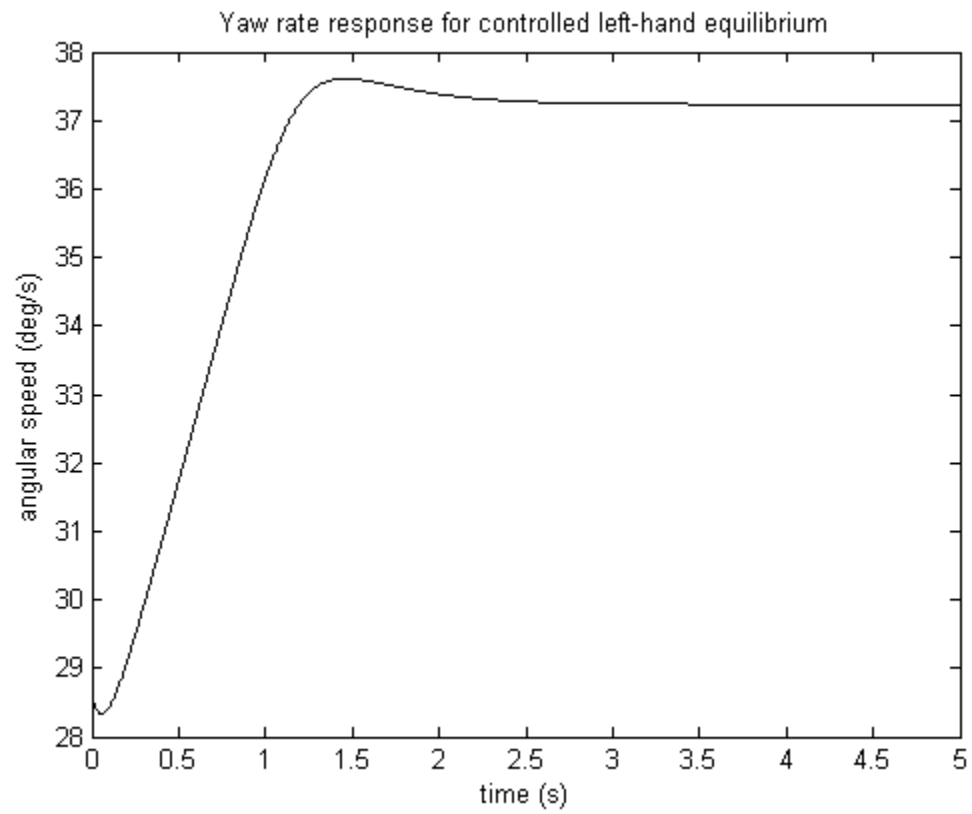
eigvalues_CL =

-3.0441
-4.9265

3(c) Drift controller in simulation

See plots below.





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