1. Book 5.2
2. Book 5.5 except changed so $X_d = 1.6$ and $X_q = 1.3$.
3. Book 5.6
4. Using the B4_GENSAL_SAT system presented in lecture 10, manually calculate the initial values for all the state variables and the field voltage if the real and reactive power output of the generator is changed so per unit power delivered to the infinite bus is $2 + j0.117$, and the saturation is changed so $S(1.0)=0.02$ and $S(1.2) = 0.1$. Also give the saturation function coefficients.
5. With the B4_GENROU_NoSat case for the bus 3 fault (contained in the case) the critical clearing time is 0.29 seconds (i.e., at 1.29 for a fault that occurs at 1.0 seconds) when the generator is producing 57.2 Mvar. Determine how the critical clearing time changes for reactive power outputs of -50, 0, 50 and 100 Mvar. Give your answer to the nearest 0.01 second.
6. The Figure 1 results on the next page were obtained using the B4_GENROU_NoSat case for the previous bus 3 fault cleared at 1.1 seconds except I varied one generator parameter. Which parameter did I vary and by how much?
Figure 1: B4_GENROU_NoSat rotor angle results for the bus 3 fault cleared at 1.1 seconds with a single mystery parameter changed by a too be determined amount.