close all;

clear all;

rng('shuffle');

t = 32; r = 32; % No. of Tx and Rx antennas

numRF = 8; % No. of RF chains

N\_Beam = 24; % No. of pilot beams

G = 32; % Size of dictionaries

ITER = 10; % Number of iterations

L = 5; % Number of multipath components in mmWave MIMO channel

omp\_thrld = 1;

kp = zeros(t\*r,L);

SNRdB = 10:10:50;

mseOMP = zeros(length(SNRdB),1);

mseGenie = zeros(length(SNRdB),1);

A\_T = 1/sqrt(t)\*exp(-j\*pi\*[0:t-1]'\*[2/G\*[0:G-1] - 1]);

A\_R = A\_T;

load('mmWave\_matrices');

Qt = kron((FBB.')\*(FRF.'),(WBB')\*(WRF'));

semilogy(SNRdB,mseOMP,'b s-','linewidth',3.0,'MarkerFaceColor','b','MarkerSize',9.0);

hold on;

semilogy(SNRdB,mseGenie,'m o-.','linewidth',3.0,'MarkerFaceColor','m','MarkerSize',9.0);

axis tight; grid on;

xlabel('SNRdB'); ylabel('Normalized MSE');

legend('OMP','ORACLE LS'); title('MSE vs SNRdB');