



EE 5141 Introduction to Wireless and Cellular Communications
February – May 2021

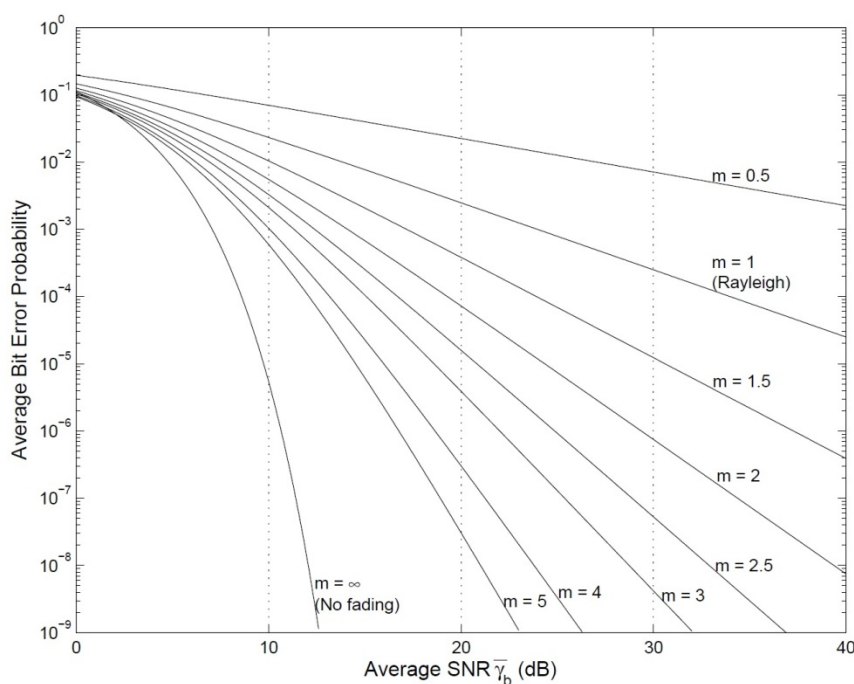
Computer Assignment # 6 (Due date: April 7, 2021)

Honour Code: Add this to your assignment

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Performance in Nakagami-m Fading

1. The goal of this task is to evaluate BER performance for DBPSK in Nakagami-m fading. The Moment Generation Function for Nakagami-m fading is given by $\psi_{\gamma}(s) = \left(1 - \frac{s}{m}\right)^{-m}$. The probability of error of DBPSK in AWGN is given by $\frac{1}{2} e^{-\gamma}$. Show that the BER of DBPSK in Nakagami fading is given by $\frac{1}{2} \psi_{\gamma}(s) \Big|_{s=-1}$. Using this expression, generate the BER of DBPSK for Nakagmi fading of different values of $m = 0.5, 1, 2, 3, 5$, and 10 and produce a figure like the one below. Comment on the characteristics of Nakagami-m fading using the BER plots.



Reference: This is Fig 6.3 From Goldsmith's book – BER Performance of BPSK in Nakagami-m fading