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| Title | Hoyt Wireless Fading Channel Capacity Analysis Using Large Limit Argument Approximation | | |
| Author(s) Name | Borshan Sarker Sonok, Md. Sohidul Islam, Md. Mazid-Ul-Haque | | |
| Contact Email(s) | mazid@aiub.edu | | |
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| Abstract |  |
| In wireless communications, a good data transfer rate is always in demand. To represent a wireless communication channel, several distributions or fading models are utilized. Prior to this, some fading system models were used to demonstrate a wireless communication channel and do analysis on the channel. This study incorporates the SIMO (single-input multiple-output) wireless communication framework over the Hoyt fading channel, commonly known as the Nakagami-q fading channel in order to analyze the performance of the system. Large limit argument approximations are used to estimate the channel capacity. The large limit argument approximation is used to introduce analytical solutions for channel capacity. SNR is the ratio of signal power to noise power, and large limit argument approximations are related to HSR (high SNR regime). The impacts of instantaneous SNR and fading parameter also known as fading boundary on channel capacity individually have been examined thoroughly. The proposed SIMO channel capacity performance for HSR is compared with the performance of LSR (low SNR regime) and the channel capacity performance is also compared with that of SISO (single-input single-output) HSR system and in-depth analysis is done on all cases. In this study, it is observed that when the instantaneous SNR in the HSR increased, the channel's capacity increased substantially. Furthermore, SIMO HSR channel capacity outperforms both SIMO LSR and SISO HSR in terms of performance. | |