

Seminar Title	: Performance Analysis of NOMA-Based SATN for THz-RF link with Randomly Deployed Users.
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Abstract	: This paper examines the performance of a dual hop satellite-aerial-terrestrial network (SATN), where a high altitude platform (HAP) acts as an aerial relay to enable data transmission from a satellite to both aerial and terrestrial users. The first hop operates in the terahertz (THz) frequency band, while the second hop utilizes the radio frequency (RF) band. The THz link is subject to the stochastic nature of the wireless channel, influenced by environmental factors such as pressure, humidity, and temperature. The envelope of the THz link in the first hop is modeled using a generalized α - μ distribution. In this framework, the outage performance of both terrestrial and aerial users is analyzed, considering their random locations and the effects of shadowed-Rician and Rician fading environments, respectively. The HAP communicates with both users employing non-orthogonal multiple access (NOMA). Furthermore, the impact of various parameters, including fading coefficients of individual links, pointing errors, and inter-node distances, on system performance is investigated. The theoretical findings are validated through simulations, providing valuable insights into the system's behavior.