396
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Abstract:This research paper delves into the level of development and advantages of application oftelecommunication systems of terahertz range (100GHz to 3000GHz), including the fields ofapplication for the developed technologies as well as the outstanding problems and feasible methods of their solution. Unfortunately, the frequency resource of the currently used radio-frequency band is physically incapable of transmitting very high-speed and high-speed data torrents via a radio channel. The application of multilevel modulations that could allow for the increase in speed is rather limited whereas the application of higher frequencies allows for theuse of broader frequency band to transfer the gigabit torrents. This innovative approach hasmany advantages, in particular, confidentiality of data transmission and narrow-beam radio emission. This paper also gives examples of available systems using the state-of-the-art semiconductor CMOS, SiGe and GaAs technologies and it also describes their specific features.
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