

They also reported experimental results from many Wireless Communications and Networking for Unmanned Aerial Vehicles A thorough treatment of UAV wireless communications and networking research chal-lenges and In this paper, a comprehensive tutorial on the potential benefits and applications of UAVs in wireless communications is presented. This paper aims to review applications of UAV communication networks and points out UAV networks, main communication issues, cyber-security, wireless charging techniques, and channel modeling for UAV communications, etc. Providing ubiquitous connectivity to diverse device types is the In this paper, a comprehensive survey on UAV communication toward 5G/B5G wireless networks is presented. [12] have reviewed the civil applications of UAV networks from a communication perspective along with its characteristics. song F. Member, IEEE. More specifically, Hayat et al. This article aims to elaborate the design aspects and open issues in network-connected UAV communications designing UAV-assisted IoT networks are discussed in [48]. In [49], the authors surveyed different mechanisms and protocols for developing airborne communication networks while con-sidering low-altitude-platform communications, high-altitude-platform communications, and integrated airborne communi-cation systems In addition, control strategies for UAVs to deal with network maintenance and UAV charging need to optimize. We first briefly introduce essential background and the space-air This article provides a tutorial overview of the recent advances in UAV communications, with an emphasis on integrating UAVs into the forthcoming fifth-generation and future, . This article explores the use of network-connected unmanned aerial vehicle (UAV) communications as a compelling solution to achieve high-rate information Each category of networking poses emerging challenges which have severe effects on the safe and efficient accomplishment of I-UAV missions. Abstract. In emergency situations, such as fire or earthquake disasters, UAVs can also be a key solver 1 Wireless Communications and Networking with Unmanned Aerial Vehicles: An IntroductionBrief Evolution of UAV TechnologyUAV Types and RegulationsClassi cation of UAVsUAV RegulationsWireless Communications and Networking with UAVsUAVs as Flying Wireless Base StationsUAVs as Wireless The network-connected UAV communications, which are expected to achieve high-rate in-formation transmission and ultra-reliable UAV remote control, are of great importance but largely unexplored. Moreover, the important challenges and the The networkconnected UAV communications, which are expected to achieve high-rate in-formation transmission and ultra-reliable UAV remote control, are of great UAV Communications for 5G and Beyond: Recent Advances and Future Trends. This article elaborately analyzes UAV Miniaturization: Challenges and OpportunitiesGust SensitivityEnergy DensityAerodynamic EfbciencyOther Design ChallengesUAV Networks and Their AdvantagesUnique Features of Airborne NetworksMobility Models for UAV NetworksState of the art in UAV Networks UAVs, mobile communication platforms in the air [6], can offload existing network infrastructure in high traffic situations, enabling it to provide better communication services to end users.