

Mobility Management in LEO Satellite Networks in Emergency Scenarios

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报告内容简介:

Disasters often lead to severe disruptions of terrestrial backbone networks, resulting in information isolation in affected areas. In such situations, very small aperture terminals (VSATs) can be rapidly deployed to establish terrestrial-satellite communication links, enabling the transmission of large volumes of situational awareness data, such as high-definition videos and three-dimensional maps. However, the high mobility of low-earth orbit (LEO) satellites necessitates frequent satellite switching to maintain service continuity. This challenge is further exacerbated in emergency scenarios, where the timely and reliable transmission of post-disaster data is of critical importance, while unpredictable disturbances can severely degrade the stability of ground-satellite backhaul links through abrupt channel variations and resource fluctuations. Consequently, robust and efficient satellite selection is crucial for sustaining reliable and high-throughput satellite backhaul. This talk presents two methods to address these challenges. The graph-based method provides lightweight user access under predictable conditions, while the DRL method improves adaptability under dynamic link and resource disturbances.

报告人简介:

Li Zhang is an Associate Professor in Communications, director of Postgraduate Taught Programmes at the School of Electronic and Electrical Engineering, University of Leeds. She leads the Wireless Communication Group within the Institute of Communication and Power Networks (ICaPNet). Her research focuses on wireless communications, including massive MIMO, mmWave and THz communications, Non-Terrestrial Networks (NTNs), mobile edge computing and 5G/6G systems. Her group is also actively investigating wireless communication challenges in different applications. She has served on the Technical Programme Committees of most major IEEE communications conferences since 2006 and is currently an associate editor for several IEEE journals. She has been a member of the UK EPSRC Peer Review College since 2006 and has served on grant review panels for both EPSRC and Royal Society. She also regularly reviews grant proposals for international funding bodies, as well as book proposals for various academic publishers. She has acted as a PhD examiner for numerous universities within and outside the UK. She has published over 170 peer-reviewed papers, and has been the PI on 12 grants and CI on 5 major research projects, collectively worth £10.4 million.

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