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	Computer networks
	Telecommunication
	Wireless communication systems
	Mobile communication systems
	Machine learning
	Expert systems (Computer science)
	System theory
	Computer Engineering and Networks
	Communications Engineering, Networks
	Wireless and Mobile Communication
	Machine Learning
	Knowledge Based Systems
	Complex Systems
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Nota di contenuto	Chapter 1. Introduction -- Chapter 2. Efficient Joint Planning of HetNets -- Chapter 3. Realization of Mobile Indoor Channels -- Chapter 4. Data-driven Handover Algorithm in Mobile HetNets -- Chapter 5. Data-driven Multi-homing Resource Allocation in Mobile HetNets -- Chapter 6. Conclusions.
Sommario/riassunto	This book discusses the smooth integration of optical and RF networks in 5G and beyond (5G+) heterogeneous networks (HetNets), covering both planning and operational aspects. The integration of high-frequency air interfaces into 5G+ wireless networks can relieve the

congested radio frequency (RF) bands. Visible light communication (VLC) is now emerging as a promising candidate for future generations of HetNets. Heterogeneous RF-optical networks combine the high throughput of visible light and the high reliability of RF. However, when implementing these HetNets in mobile scenarios, several challenges arise from both planning and operational perspectives. Since the mmWave, terahertz, and visible light bands share similar wave propagation characteristics, the concepts presented here can be broadly applied in all such bands. To facilitate the planning of RF-optical HetNets, the authors present an algorithm that specifies the joint optimal densities of the base stations by drawing on stochastic geometry in order to satisfy the users' quality-of-service (QoS) demands with minimum network power consumption. From an operational perspective, the book explores vertical handovers and multi-homing using a cooperative framework. For vertical handovers, it employs a data-driven approach based on deep neural networks to predict abrupt optical outages; and, on the basis of this prediction, proposes a reinforcement learning strategy that ensures minimal network latency during handovers. In terms of multi-homing support, the authors examine the aggregation of the resources from both optical and RF networks, adopting a two-timescale multi-agent reinforcement learning strategy for optimal power allocation. Presenting comprehensive planning and operational strategies, the book allows readers to gain an in-depth grasp of how to integrate future coexisting networks at high-frequency bands in a cooperative manner, yielding reliable and high-speed 5G+ HetNets.