

1. Record Nr.	UNISA996391147303316
Titolo	Fyrst in the prologue .. [[electronic resource]]
Pubbl/distr/stampa	[London, : W. de Machlinia, 1486?]
Descrizione fisica	[416+] p
Altri autori (Persone)	CaxtonWilliam <ca. 1422-1491.>
Soggetti	Great Britain History To 1485 Early works to 1800
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from heading, a2r. Printer's name from and publication date conjectured by STC. Also known as "Brut". Signatures: a Â² a B-Z [et] 2a+. Imperfect; leaves aiii,vii and all after 2a8 lacking. Reproduction of the original in the British Library.
Sommario/riassunto	eebo-0018

2. Record Nr.	UNINA9910830581603321
Autore	Jiang Wei (Writer on 6G networks)
Titolo	6G key technologies : a comprehensive guide / / Wei Jiang and Fa-Long Luo
Pubbl/distr/stampa	Hoboken, New Jersey : , : John Wiley & Sons, Inc., , [2023] ©2023
ISBN	1-119-84750-8 1-119-84748-6
Descrizione fisica	1 online resource (579 pages)
Collana	IEEE Press
Disciplina	621.384
Soggetti	Wireless communication systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover -- Title Page -- Copyright -- Contents -- Preface -- List of Abbreviations -- Part I The Vision of 6G and Technical Evolution -- Chapter 1 Standards History of Cellular Systems Toward 6G -- 1.1 0G: PreCellular Systems -- 1.2 1G: The Birth of Cellular Network -- 1.2.1 Nordic Mobile Telephone (NMT) -- 1.2.2 Advanced Mobile Phone System (AMPS) -- 1.3 2G: From Analog to Digital -- 1.3.1 Global System for Mobile Communications (GSM) -- 1.3.2 Digital Advanced Mobile Phone System (DAMPS) -- 1.3.3 Interim Standard 95 (IS95) -- 1.3.4 Personal Digital Cellular (PDC) -- 1.3.5 General Packet Radio Service (GPRS) -- 1.3.6 Enhanced Data Rates for GSM Evolution (EDGE) -- 1.4 3G: From Voice to DataCentric -- 1.4.1 Wideband CodeDivision Multiple Access (WCDMA) -- 1.4.2 CodeDivision Multiple Access 2000 (CDMA2000) -- 1.4.3 Time DivisionSynchronous CodeDivision Multiple Access (TDSCDMA) -- 1.4.4 Worldwide Interoperability for Microwave Access (WiMAX) -- 1.5 4G: Mobile Internet -- 1.5.1 Long Term EvolutionAdvanced (LTEAdvanced) -- 1.5.2 WirelessMAN Advanced -- 1.6 5G: From Human to Machine -- 1.7 Beyond 5G -- 1.8 Conclusions -- References -- Chapter 2 Pre6G Technology and System Evolution -- 2.1 1G-AMPS -- 2.1.1 System Architecture -- 2.1.2 Key Technologies -- 2.1.2.1 Frequency Reuse -- 2.1.2.2 Cell Splitting -- 2.1.2.3 Sectorization -- 2.1.2.4 Handover -- 2.1.2.5 Frequency Division Multiple Access -- 2.2 2G-GSM -- 2.2.1 System Architecture

-- 2.2.1.1 Mobile Station Subsystem -- 2.2.1.2 Bases Station Subsystem -- 2.2.1.3 Network and Switching Subsystem -- 2.2.1.4 Operation and Support Subsystem -- 2.2.1.5 General Packet Radio Service -- 2.2.1.6 Gateway GPRS Support Node -- 2.2.2 Key Technologies -- 2.2.2.1 TimeDivision Multiple Access -- 2.2.2.2 Frequency Hopping -- 2.2.2.3 Speech Compression -- 2.2.2.4 Channel Coding. 2.2.2.5 Digital Modulation -- 2.2.2.6 Discontinuous Transmission (DXT) -- 2.3 3G-WCDMA -- 2.3.1 System Architecture -- 2.3.1.1 User Equipment -- 2.3.1.2 UMTS Terrestrial Radio Access Network -- 2.3.1.3 Core Network -- 2.3.2 Key Technologies -- 2.3.2.1 Code Division Multiple Access -- 2.3.2.2 Rake Receiver -- 2.3.2.3 Turbo Codes -- 2.4 4G-LTE -- 2.4.1 System Architecture -- 2.4.1.1 Evolved Universal Terrestrial Radio Access Network -- 2.4.1.2 Evolved Packet Core -- 2.4.2 Key Technologies -- 2.4.2.1 Orthogonal Frequency Division Multiplexing -- 2.4.2.2 Carrier Aggregation -- 2.4.2.3 Relaying -- 2.4.2.4 Heterogeneous Network -- 2.4.2.5 Coordinated MultiPoint Transmission and Reception -- 2.4.2.6 Device-to-Device Communications -- 2.4.2.7 License-Assisted Access -- 2.5 5G-New Radio -- 2.5.1 System Architecture -- 2.5.1.1 5G Core Network -- 2.5.1.2 Next Generation Radio Access Network -- 2.5.2 Key Technologies -- 2.5.2.1 Massive MIMO -- 2.5.2.2 Millimeter Wave -- 2.5.2.3 NonOrthogonal Multiple Access -- 2.5.2.4 SDN/NFV -- 2.5.2.5 Network Slicing -- 2.5.2.6 Polar Codes -- 2.6 Conclusions -- References -- Chapter 3 The Vision of 6G: Drivers, Enablers, Uses, and Roadmap -- 3.1 Background -- 3.2 Explosive Mobile Traffic -- 3.3 Use Cases -- 3.4 Usage Scenarios -- 3.5 Performance Requirements -- 3.6 Research Initiatives and Roadmap -- 3.6.1 ITU -- 3.6.2 Third Generation Partnership Project -- 3.6.3 Industry -- 3.6.4 Europe -- 3.6.5 The United States -- 3.6.6 China -- 3.6.7 Japan -- 3.6.8 South Korea -- 3.7 Key Technologies -- 3.7.1 Millimeter Wave -- 3.7.2 Terahertz Communications -- 3.7.3 Optical Wireless Communications -- 3.7.4 Massive MIMO -- 3.7.5 Intelligent Reflecting Surfaces -- 3.7.6 NextGeneration Multiple Access -- 3.7.7 Open Radio Access Network -- 3.7.8 NonTerrestrial Networks -- 3.7.9 Artificial Intelligence. 3.7.10 CommunicationComputingSensing Convergence -- 3.8 Conclusions -- References -- Part II FullSpectra Wireless Communications in 6G -- Chapter 4 Enhanced MillimeterWave Wireless Communications in 6G -- 4.1 Spectrum Shortage -- 4.2 mmWave Propagation Characteristics -- 4.2.1 LargeScale Propagation Effects -- 4.2.1.1 FreeSpace Propagation Loss -- 4.2.1.2 NLOS Propagation and Shadowing -- 4.2.1.3 Atmospheric Attenuation -- 4.2.2 SmallScale Propagation Effects -- 4.2.3 Delay Spread and Coherence Bandwidth -- 4.2.4 Doppler Spread and Coherence Time -- 4.2.5 Angular Spread -- 4.3 MillimeterWave Channel Models -- 4.3.1 LargeScale Fading -- 4.3.2 3GPP Channel Models -- 4.3.2.1 Urban Micro Scenario -- 4.3.2.2 Urban Macro Scenario -- 4.3.2.3 Indoor Scenario -- 4.3.3 SmallScale Fading -- 4.4 mmWave Transmission Technologies -- 4.4.1 Beamforming -- 4.4.1.1 Digital Beamforming -- 4.4.1.2 Analog Beamforming -- 4.4.1.3 Hybrid Beamforming -- 4.4.1.4 3D Beamforming -- 4.4.2 Initial Access -- 4.4.2.1 MultiBeam Synchronization and Broadcasting -- 4.4.2.2 Conventional Initial Access in LTE -- 4.4.2.3 BeamSweeping Initial Access in NR -- 4.4.3 Omnidirectional Beamforming -- 4.4.3.1 Random Beamforming -- 4.4.3.2 Enhanced Random Beamforming -- 4.4.3.3 Complementary Random Beamforming -- 4.5 Summary -- References -- Chapter 5 Terahertz Technologies and Systems for 6G -- 5.1 Potential of Terahertz Band -- 5.1.1 Spectrum Limit -- 5.1.2 The Need of

Exploiting Terahertz Band -- 5.1.3 Spectrum Regulation on Terahertz Band -- 5.2 Terahertz Applications -- 5.2.1 Terahertz Wireless Communications -- 5.2.1.1 Terabit Cellular Hotspot -- 5.2.1.2 Terabit Wireless LocalArea Network -- 5.2.1.3 Terabit DeviceToDevice Link -- 5.2.1.4 Secure Wireless Communication -- 5.2.1.5 Terabit Wireless Backhaul -- 5.2.1.6 Terahertz NanoCommunications. 5.2.2 NonCommunication Terahertz Applications -- 5.2.2.1 Terahertz Sensing -- 5.2.2.2 Terahertz Imaging -- 5.2.2.3 Terahertz Positioning -- 5.3 Challenges of Terahertz Communications -- 5.3.1 High Free Space Path Loss -- 5.3.2 Atmospheric Attenuation -- 5.3.3 Weather Effects -- 5.3.4 Blockage -- 5.3.5 High Channel Fluctuation -- 5.4 ArrayofSubarrays Beamforming -- 5.5 Lens Antenna -- 5.5.1 Refraction of Radio Waves -- 5.5.2 Lens Antenna Array -- 5.6 Case Study-IEEE 802.15.3d -- 5.6.1 IEEE 802.15.3d Usage Scenarios -- 5.6.2 Physical Layer -- 5.6.2.1 Channelization -- 5.6.2.2 Modulation -- 5.6.2.3 Forward Error Correction -- 5.6.3 Medium Access Control -- 5.6.4 Frame Structure -- 5.6.4.1 Preamble -- 5.6.4.2 PHY Header -- 5.6.4.3 MAC Header -- 5.6.4.4 Construction Process of Frame Header -- 5.7 Summary -- References -- Chapter 6 Optical and Visible Light Wireless Communications in 6G -- 6.1 The Optical Spectrum -- 6.1.1 Infrared -- 6.1.2 Visible Light -- 6.1.3 Ultraviolet -- 6.2 Advantages and Challenges -- 6.3 OWC Applications -- 6.4 Evolution of Optical Wireless Communications -- 6.4.1 Wireless Infrared Communications -- 6.4.2 Visible Light Communications -- 6.4.3 Wireless Ultraviolet Communications -- 6.4.4 FreeSpace Optical Communications -- 6.5 Optical Transceiver -- 6.6 Optical Sources and Detectors -- 6.6.1 Light Emitting Diode -- 6.6.2 Laser Diode -- 6.6.3 Photodiode -- 6.7 Optical Link Configuration -- 6.8 Optical MIMO -- 6.8.1 Spatial Multiplexing -- 6.8.2 Spatial Modulation -- 6.9 Summary -- References -- Part III Smart Radio Networks and Air Interface Technologies for 6G -- Chapter 7 Intelligent Reflecting SurfaceAided Communications for 6G -- 7.1 Basic Concept -- 7.2 IRS Aided SingleAntenna Transmission -- 7.2.1 Signal Model -- 7.2.2 Passive Beamforming -- 7.2.3 ProductDistance Path Loss -- 7.3 IRS Aided MultiAntenna Transmission. 7.3.1 Joint Active and Passive Beamforming -- 7.3.1.1 SDR Solution -- 7.3.1.2 Alternating Optimization -- 7.3.2 Joint Precoding and Reflecting -- 7.4 DualBeam Intelligent Reflecting Surface -- 7.4.1 Dual Beams Over Hybrid Beamforming -- 7.4.2 DualBeam IRS -- 7.4.3 Optimization Design -- 7.5 IRS Aided Wideband Communications -- 7.5.1 Cascaded FrequencySelective Channel -- 7.5.2 IRS Aided OFDM System -- 7.5.3 Rate Maximization -- 7.6 MultiUser IRS Communications -- 7.6.1 Multiple Access Model -- 7.6.2 Orthogonal Multiple Access -- 7.6.2.1 TimeDivision Multiple Access -- 7.6.2.2 FrequencyDivision Multiple Access -- 7.6.3 NonOrthogonal Multiple Access -- 7.7 Channel Aging and Prediction -- 7.7.1 Outdated Channel State Information -- 7.7.1.1 Doppler Shift -- 7.7.1.2 Phase Noise -- 7.7.2 Impact of Channel Aging on IRS -- 7.7.3 Classical Channel Prediction -- 7.7.3.1 Autoregressive Model -- 7.7.3.2 Parametric Model -- 7.7.4 Recurrent Neural Network -- 7.7.5 RNNBased Channel Prediction -- 7.7.5.1 FlatFading Channel Prediction -- 7.7.5.2 FrequencySelective Fading Channel Prediction -- 7.7.6 LongShort Term Memory -- 7.7.7 Deep LearningBased Channel Prediction -- 7.8 Summary -- References -- Chapter 8 Multiple Dimensional and Antenna Techniques for 6G -- 8.1 Spatial Diversity -- 8.2 Receive Combining -- 8.2.1 Selection Combining -- 8.2.2 Maximal Ratio Combining -- 8.2.3 EqualGain Combining -- 8.3 SpaceTime Coding -- 8.3.1 Repetition Coding -- 8.3.2 SpaceTime Trellis Codes -- 8.3.3 Alamouti Coding -- 8.3.4 SpaceTime Block Codes -- 8.4 Transmit

Antenna Selection -- 8.5 Beamforming -- 8.5.1 Classical Beamforming
-- 8.5.2 SingleStream Precoding -- 8.6 Spatial Multiplexing -- 8.6.1
SingleUser MIMO -- 8.6.2 MIMO Precoding -- 8.6.2.1 Full CSI at the
Transmitter -- 8.6.2.2 Limited CSI at the Transmitter -- 8.6.3 MIMO
Detection.
8.6.3.1 MaximumLikelihood Detection.
