This book provides an in-depth guide to femtocell technologies

In this book, the authors provide a comprehensive and organized explanation of the femtocell concepts, architecture, air interface technologies, and challenging issues arising from the deployment of femtocells, such as interference, mobility management and self-organization. The book details a system level simulation based methodology addressing the key concerns of femtocell deployment such as interference between femto and macrocells, and the performance of both femto and macrocell layers. In addition, key research topics in interference modeling and mitigation, mobility management and Self-Organizing Network (SON) are highlighted. The authors also introduce HNB/HeNB standardization in 3GPP. Furthermore, access methods (closed, open and hybrid), applications, timing synchronization, health issues, business models and security are discussed. The authors also provide a comparison between femtocells and other indoor coverage techniques such as picocells, repeaters, distributed antenna systems and radio over fiber. Lastly, both CDMA and OFDMA based femtocells are covered.

Key Features:

• Provides a comprehensive reference on femtocells and related topics

• Offers the latest research results on femtocells based on simulation and measurements
• Gives an overview of indoor coverage techniques such as picocells, repeaters, distributed antenna systems, radio over fiber and femtocells

• Includes chapters on femtocell access network architecture, air interface technologies (GSM, UMTS, HSPA, WiMAX and LTE), femtocell simulation, interference analysis and mitigation in femto/macrocell networks, mobility management in femto/macrocell networks, femtocell self-organization and other key challenges such as timing synchronization and security faced by femtocell deployment

• Points to over 240 references from 3GPP, The Femto Forum, journals and conference proceedings

This book will be an invaluable guide for RF engineers from operators, R&D engineers from femtocells hardware manufacturers, employees from regulatory bodies, radio network planners, academics and researchers from universities and research organizations. Students undertaking wireless communications courses will also find this book insightful.

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