

Song, L., Niyato, D., Han, Z., and Hossain, E. *Wireless Device-to-Device Communications and Networks*. Cambridge CB2 8BS, United Kingdom: Cambridge University Press, 2015, 418 pp. \$120.00 (Hardbound).

Covering the fundamental theory together with the state of the art in research and development, this practical guide provides the techniques needed to design, analyze, and optimize device-to-device (D2D) communications in wireless networking.

With an ever-increasing demand for higher-data-rate wireless access, D2D communication is set to become a key feature supported by next-generation cellular networks. This book introduces D2D-based wireless communications from the physical-, MAC-, network-, and application-layer perspectives, providing all the key background information before moving on to discuss real-world application as well as potential future developments. Key topics are discussed in detail, such as dynamic resource sharing (e.g., of spectrum and power) between cellular and ad-hoc D2D communications to accommodate larger volumes of traffic and provide better service to users. Readers will understand the practical challenges of resource management, optimization, security, standardization, and network topology, and learn how the design principles are applied in practice.

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Ekram Hossain is a Professor in the Department of Electrical and Computer Engineering at the University of Manitoba, Canada, where his current research interests include the design, analysis, and optimization of wireless/mobile communications networks, cognitive radio systems, and network economics. He has received several awards, including the 2010 and the 2014 University of Manitoba Merit Award for Research and Scholarly Activities), the 2011 IEEE Communications Society Fred W. Ellersick Prize Paper Award, and the IEEE Wireless Communications and Networking Conference 2012 Best Paper Award.