



# Cooperative Communications: Hardware, Channel and PHY

Mischa Dohler, Yonghui Li

E-Book	978-0-470-74006-4	January 2010	<b>£81.99</b>
Hardcover	978-0-470-99768-0	February 2010	<b>£90.50</b>
O-Book	978-0-470-74007-1	February 2010	<b>Available on Wiley Online Library</b>

## DESCRIPTION

### Facilitating Cooperation for Wireless Systems

*Cooperative Communications: Hardware, Channel & PHY* focuses on issues pertaining to the PHY layer of wireless communication networks, offering a rigorous taxonomy of this dispersed field, along with a range of application scenarios for cooperative and distributed schemes, demonstrating how these techniques can be employed. The authors discuss hardware, complexity and power consumption issues, which are vital for understanding what can be realized at the PHY layer, showing how wireless channel models differ from more traditional models, and highlighting the reliance of PHY algorithm performance on the underlying channel models. Numerous transparent and regenerative relaying protocols are described in detail for a variety of transparent and regenerative cooperative schemes.

#### Key Features:

- Introduces background, concepts, applications, milestones and thorough taxonomy
- Identifies the potential in this emerging technology applied to e.g. LTE/WiMAX, WSN
- Discusses latest wireless channel models for transparent and regenerative protocols

- Addresses the fundamentals as well as latest emerging PHY protocols
- Introduces transparent distributed STBC, STTC, multiplexing and beamforming protocols
- Quantifies regenerative distributed space-time, channel and network coding protocols
- Explores system optimization, such as distributed power allocation and relay selection
- Introduces and compares analog and digital hardware architectures
- Quantifies complexity, memory and power consumption of 3G UMTS & 4G LTE/WiMAX relay
- Highlights future research challenges within the cooperative communications field

This book is an invaluable guide for professionals and researchers in communications fields. It will also be of interest to graduates of communications and electronic engineering courses. It forms part of an entire series dedicated to cooperative wireless systems.

---

## ABOUT THE AUTHOR

**Dr. Mischa Dohler** obtained his MSc degree in Telecommunications from King's College London, UK, in 1999, his Diploma in Electrical Engineering from Dresden University of Technology, Germany, in 2000, and his PhD from King's College London in 2003. He was lecturer at King's College London, Centre for Telecommunications Research, until June 2005. He now works as a Senior Expert in the R&D department of France Telecom working on distributed/cooperative communication systems, sensor networks and cognitive radio. He has published over 90 technical journal and conference papers, holds several patents and has co-edited and contributed to several books.

---

To purchase this product, please visit <https://www.wiley.com/en-gb/9780470997680>