

Bloch, Matthieu and João Barros. *Physical-Layer Security – From Information Theory to Security Engineering*. New York, NY: Cambridge University Press, 2011, 329 pp. \$90.00 (Hardbound).

This complete guide to physical-layer security presents the theoretical foundations, practical implementation, challenges, and benefits of a groundbreaking new model for secure communication. Using a bottom-up approach from the link level all the way to end-to-end architectures, it provides essential practical tools that enable graduate students, industry professionals, and researchers to build more secure systems by exploiting the noise inherent to communication channels.

The book begins with a self-contained explanation of the information-theoretic limits of secure communications at the physical layer. It then goes on to develop practical coding schemes, building on the theoretical insights and enabling readers to understand the challenges and opportunities related to the design of physical-layer security schemes. Finally, applications to multi-user communications and network coding are also included.

Matthieu Bloch is an Assistant Professor in the School of Electrical Engineering of the Georgia Institute of Technology. He received a Ph.D. in Engineering Science from the Université de Franche-Comté, Besançon, France, in 2006, and a Ph.D. in Electrical Engineering from Georgia Institute of Technology in 2008. His research interests are in the areas of information theory, error-control coding, wireless communications, and quantum cryptography.

João Barros is an Associate Professor in the Department of Electrical and Computer Engineering of the Faculdade de Engenharia da Universidade do Porto, the Head of the Porto Delegation of the Instituto de Telecomunicações, Portugal, and a Visiting Professor at the Massachusetts Institute of Technology. He received his Ph.D. in Electrical Engineering and Information Technology from the Technische Universität München (TUM), Germany, 2004 and has since published extensively in the general areas of information theory, communication networks, and security. He has taught short courses and tutorials at various institutions and received a Best Teaching Award from the Bavarian State Ministry of Sciences and the Arts, as well as the 2010 IEEE ComSoc Young Researcher Award for Europe, the Middle East, and Africa.