Security in Wireless Ad Hoc and Sensor Networks

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E-Book	ISBN: 978-0-470-51677-5	December 2008	**£85.99**
Hardcover	ISBN: 978-0-470-02748-6	January 2009	**£94.50**
O-Book	ISBN: 978-0-470-51678-2	January 2009	**Available on Wiley Online Library**

📖 DESCRIPTION

This book provides an in-depth guide to security in wireless ad hoc and sensor networks

Security in Wireless Ad Hoc and Sensor Networks introduces the reader to the fundamentals and key issues related to wireless ad hoc networking, with an emphasis on security. It discusses the security attacks and counter measures in wireless ad hoc, sensor and mesh networks, and briefly presents the standards on related topics. The authors offer a clear exposition of various challenges and solutions in this field including bootstrapping, key distribution and exchange, authentication issues, privacy, anonymity and tamper resilience.

Key Features:

• Introduces the fundamentals and key issues of the new technologies followed by comprehensive presentation on security attacks and counter measures

• Covers Denial of Service (DoS) attacks, hardware aspects of secure wireless ad hoc and sensor networks and secure routing

• Contains information on cryptographic primitives and electronic warfare

• Includes problems at the end of each chapter to enhance learning.

This book is well suited for graduate students in computer, electrical and communications engineering and computer science departments, researchers in academia and industry, as well as C4I engineers and officers in the military. Wireless network designers for internet service providers and mobile communications operators will also find this book very useful.

◣ ABOUT THE AUTHOR

Erdal Çay#rc# graduated from the Army Academy in 1986 and from the Royal Military Academy, Sandhurst in 1989. He received his MS degree from the Middle East Technical University and a PhD from Bogazici University both in computer engineering in 1995 and 2000, respectively. He retired from the army when he was a colonel in 2005. He was an Associate Professor at Istanbul Technical University, Yeditepe University and the Naval Sciences and Engineering Institute between 2001 and 2005. Also in 2001, he was a visiting researcher for the Broadband and Wireless Networking Laboratory and a visiting lecturer at the School of Electrical and Computer Engineering, Georgia Institute of Technology. He is currently Chief, CAX Support Branch in NATO's JointWarfare Center in Stavanger, Norway, and also a professor in the Electrical and Computer Engineering Department of the University of Stavanger. His research interests include military constructive simulation, sensor networks, mobile communications and tactical communications. Professor Çay#rc# has acted as an editor of the journals *IEEE Transactions on Mobile Computing, Ad Hoc Networks* and *Wireless Networks*, and has guest edited four special issues of *Computer Networks*, *Ad Hoc Networks* and *Special Topics in Mobile Networking and Applications (MONET)*. He received the 2002 IEEE Communications Society Best Tutorial Paper Award for his paper entitled 'A Survey on Sensor Networks' published in the *IEEE Communications Magazine* in August 2002, the Fikri Gayret Award from the Turkish Chief of General Staff in 2003, the Innovation of the Year Award from the Turkish Navy in 2005 and the Excellence Award in ITEC in 2006.

Chunming Rong received his bachelors, masters and PhD degrees in Computer Science from the University of Bergen in Norway in 1993, 1995 and 1998, respectively. In 1995–1998, he was a research fellow at the University of Bergen. In 2001–2003, he was a post-doctoral researcher funded by Simula Research Laboratory. Currently, he is a Professor and chair of the computer science section at the University of Stavanger. He has also served as an adjunct Professor at the University Graduate Centre, University of Oslo, since 2005. Professor Rong was given the ConocoPhilips Communication Award (Norway) in 2007. His paper ' *New Infinite Families of 3-Designs from Preparata Codes over Z*4 ' was awarded Editor's Choice in *Discrete Mathematics* in 1999. He is an associate editor of the *International Journal of Computer Science & Applications (IJCSA)* and served on the editorial board of the *International Journal of Mobile Communications (IJMC)* between 2003 and 2006. For the IEEE International Symposium on Security in Networks and Distributed Systems (SSNDS), he was program chair in 2007 in Canada and general chair in 2008. For the International Conference on Autonomic and Trusted Computing (ATC), he was award chair in 2007 in Hong Kong and general chair in 2008 in Norway. For the International Conference on Ubiquitous Intelligence and Computing (UIC), he was general chair in 2008 in Norway. Professor Rong was chairman of the board of the Foundation of the Norwegian Computer Science Conference (NIK) from 2005–2007, a board member of the Norwegian Information Security Network (NISNet) from 2007–2011 and a member of the Norwegian Informatics Council (Nasjonalt fagråd for informatikk). He has also been a member of the board for the 'ICT Security and Vulnerability (IKT-SoS)' program at the Research Council of Norway. He also currently serves in the workgroup for Information Security in Integrated Operation at the Norwegian Oil Industry Association (OLF). As project manager,

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