Driven by the desire to boost the quality of service of wireless systems closer to that afforded by wireline systems, space-time processing for multiple-input multiple-output (MIMO) wireless communications research has drawn remarkable interest in recent years. Exciting theoretical advances have been complemented by rapid transition of research results to industry products and services, thus creating a vibrant new area.

Space-time processing is a broad area, owing in part to the underlying convergence of information theory, communications and signal processing research that brought it to fruition. This book presents a balanced and timely introduction to space-time processing for MIMO communications, including highlights of emerging trends, such as spatial multiplexing and joint transceiver optimization.

- Includes detailed coverage of wireless channel sounding, modelling, characterization and model validation.
- Provides state-of-the-art research results on space-time coding, including comprehensive tutorial coverage of orthogonal space-time block codes.
- Discusses important recent developments in spatial multiplexing, transmit beam-forming, pre-coding and joint transceiver design for the multi-user MIMO downlink using full or partial CSI.
- Illustrates all theory with numerous examples gleaned from cutting-edge research from around the globe.
This valuable resource will appeal to engineers, developers and consultants involved in the design and implementation of space-time processing for MIMO communications. Its accessible format, amply illustrated with real world case studies, contains relevant, detailed advice for postgraduate students and researchers specializing in this field.

ABOUT THE AUTHOR

Since 2002, Professor Alex Gershman has worked in the Dept of Electrical & Computer Engineering at McMaster University in Canada but is currently on research leave as a Guest Professor and Head of the Smart Antenna Research team (SmART) at the Dept of Communication Systems, University of Duisburg-Essen, Germany. With 20 years experience in the field gained in Russia, Switzerland, Germany and Canada, Professor Gershman has participated in numerous technical committees and has been an invited speaker at more than 20 events. He is a Senior Member of the IEEE and since 1999 has been the Associate Editor of IEEE Transactions on Signal Processing.

Professor Nikos Sidiropoulos currently works in both the Telecommunications Division, Dept of Electronic & Computer Engineering, University of Crete, Greece and as an Adjunct Professor at the Dept of Electrical & Computer Engineering & Digital Technology Center, University of Minnesota, USA. After completing his Diploma in Electrical Engineering in Greece he obtained his M.S. and Ph.D. in Electrical Engineering from the University of Maryland, USA. With 15 years experience in the area he has industry experience from G-Systems Ltd, Athens and as a consultant for Globespan Inc. USA.

For additional product details, please visit https://www.wiley.com/en-us