



Adaptive Wireless Transceivers: Turbo-Coded, Turbo-Equalized and Space-Time Coded TDMA, CDMA and OFDM Systems

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DESCRIPTION

Adaptive Wireless Transceivers provides the reader with an overview of near-instantaneously adaptive transceivers in the context of TDMA, CDMA and OFDM systems. The adaptive transceivers examined employ powerful turbo codecs, turbo equalisers and space-time codecs, equipping the reader with a future-proof technological road map. It demonstrates that adaptive transceivers are capable of mitigating the channel quality fluctuations of the wireless channel as a lower-complexity alternative to space-time coding. By contrast, if the higher complexity of multiple transmitters and multiple receiver-assisted systems is deemed acceptable, the advantages of adaptability erode.

- * Provides an in-depth introduction to channel equalisers and Kalman filtering and discusses the associated complexity versus performance trade-offs
- * Introduces wideband near-instantaneously adaptive transceivers and studies their performance both with and without turbo channel coding
- * Describes how to optimise adaptive modulation mode switching and highlights a range of practical considerations
- * Introduces neural network based channel equalisers and discusses Radial Basis Function (RBF) assisted equalisers embedded into adaptive modems supported by turbo channel coding and turbo channel equalisation
- * Employs the above adaptive principles also in the context of CDMA and OFDM transceivers and discusses the pros and cons of space-time coding versus adaptive modulation

Researchers, advanced students and practising development engineers working in wireless communications will all find this valuable text an informative read.

ABOUT THE AUTHOR

Lajos Hanzo received his degree in electronics in 1976 and his doctorate in 1983. During his 25-year career in telecommunications he has held various research and academic posts in Hungary, Germany and the UK. Since 1986 he has been with the Department of Electronics and Computer Science, University of Southampton, UK, where he holds the chair in telecommunications. He has co-authored eight books on mobile radio communications, published over 300 research papers, organised and chaired conference sessions, presented overview lectures and been awarded a number of distinctions. Currently he is managing an academic research team, working on a range of research projects in the field of wireless multimedia communications sponsored by industry, the Engineering and Physical Sciences Research Council UK, the European IST Programme and the Mobile Virtual Centre of Excellence, UK. He is an enthusiastic supporter of industrial and academic liaison and he offers a range of industrial courses. He is also an IEEE Distinguished Lecturer. For further information on research in progress and associated publications please refer to <http://www-mobile.ecs.soton.ac.uk>.

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