Channel Codes Classical and Modern.

Ryan, William E. and Shu Lin.*Channel Codes Classical and Modern.* New York, NY: Cambridge University Press, 2009, 692 pp. $80.00 (Hardbound).

Channel coding lies at the heart of digital communication and data storage, and this detailed introduction describes the core theory as well as decoding algorithms, implementation details, and performance analyses.

Professors Ryan and Lin, known for the clarity of their writing, provide the latest information on modern channel codes, including turbo and low-density parity-check (LDPC) codes. They also present detailed coverage of BCH codes, Reed-Solomon codes, convolutional codes, finite-geometry codes, and product codes, providing a one-stop resource for both classical and modern coding techniques.

The opening chapters begin with basic theory to introduce newcomers to the subject, assuming no prior knowledge in the field of channel coding. Subsequent chapters cover the encoding and decoding of the most widely used codes and extend to advanced topics such as code ensemble performance analyses and algebraic code design. Numerous varied and stimulating end-of-chapter problems, 250 in total, are also included to test and enhance learning, making this an essential resource for students and practitioners alike.

William E. Ryan is a Professor in the Department of Electrical and Computer Engineering at the University of Arizona, where he has been a faculty member since 1998. Before moving to academia, he held positions in industry for five years. He has published over 100 technical papers and his research interests include coding and signal processing with applications to data storage and data communications.

Shu Lin is an Adjunct Professor in the Department of Electrical and Computer Engineering, University of California, Davis. He has authored and co-authored numerous technical papers and several books, including the successful *Error Control Coding* (with Daniel J. Costello). He is an IEEE Life Fellow and has received several awards, including the Alexander von Humboldt Research Prize for US Senior Scientists (1996) and the IEEE Third-Millenium Medal (2000).