

**Zamir, Ram. *Lattice Coding for Signals and Networks*. United Kingdom: Cambridge University Press, 2014, 437 pp. \$125.00 (Hardbound).**

Unifying information theory and digital communication through the language of lattice codes, this book provides a detailed overview for students, researchers and industry practitioners.

It covers classical work by leading researchers in the field of lattice codes and complementary work on dithered quantization and infinite constellations, and then introduces the more recent results on “algebraic binning” for side-information problems and linear/lattice codes for networks. It shows how high-dimensional lattice codes can close the gap to the optimal information theoretic solution, including the characterization of error exponents.

The solutions presented are based on lattice codes and are therefore close to practical implementations, with many advanced setups and techniques, such as shaping, entropy-coding, side-information and multi-terminal systems. Moreover, some of the network setups shown demonstrate how lattice codes are potentially more efficient than traditional random coding solutions, for instance when generalizing the framework to Gaussian networks.

**Ram Zamir** is a Professor at the Department of Electrical Engineering Systems at Tel-Aviv University, Israel. He consults in the areas of radar and communication (DSL and WiFi), and is the Chief Scientist of Celeno Communications.