

Dimensions of Channel Coding: From Theory to Algorithms to Applications

Special Issue Dedicated to the Memory of Alexander Vardy

[IEEE Journal on Selected Areas in Information Theory \(JSAIT\)](#)

Editor-in-Chief: Tara Javidi (University of California, San Diego)

Call for Papers

This special issue of the IEEE Journal on Selected Areas in Information Theory is dedicated to the memory of Alexander Vardy, a pioneer in the theory and practice of channel coding. His ground-breaking contributions ranged from unexpected solutions of long-standing theoretical conjectures to ingenious decoding algorithms that broke seemingly insurmountable barriers to code performance. Inspired not just by the mathematical beauty of coding theory but also by its engineering utility, Alexander Vardy developed novel coding techniques that have had a profound impact on modern information technology, including computer memories, data storage systems, satellite communications, and wireless cellular networks. At the same time, his innovations left their imprint on other scientific disciplines, such as information theory, computer science, and discrete mathematics.

The goal of this issue is to celebrate the expansive scientific and engineering legacy of Alexander Vardy, in all its reach and richness. Original research papers on topics inspired by his diverse body of work are invited, as well as surveys and expository articles that highlight the lasting influence of his discoveries.

Topics of interest include, but are not limited to,

- Algebraic error-correcting codes - constructions and bounds
- Codes on graphs and trellises - classification, complexity, and constructions
- Polar codes - constructions, decoding, and performance analysis
- Decoding algorithms - soft-decision decoding, list decoding, and iterative decoding
- Combinatorial coding - designs, tilings, lattices, and sphere packings
- Codes and complexity theory - hardness proofs and minimal representations
- Efficient coding and hardware implementation architectures
- Applications of coding: on-chip interconnects, computer memories, communication networks, distributed storage, private information retrieval, secure communication, and wireless transmission

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Submission Guidelines

Prospective authors should prepare their papers following regular submission guidelines of the IEEE Journal on Selected Areas in Information Theory (see <https://www.itsoc.org/jsait/author-information>).

Important Dates

Manuscript Due: January 15, 2023

First Review: May 15, 2023

Second Review: August 15, 2023

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