

CALL FOR PAPERS
IEEE Journal on Selected Areas in Communications
CAPACITY APPROACHING CODES

The field of channel coding began with Claude Shannon's 1948 landmark paper in which he introduced the notion of channel capacity and proved the existence of codes that can achieve reliable communication at rates approaching capacity. For the past 60 years, researchers have been trying to construct codes that have practical encoding and decoding procedures and can approach the performance promised by Shannon. For the first 45 years, these efforts fell short of the mark. Then, with the invention of turbo codes in 1993 and the re-discovery of low-density parity check (LDPC) codes a few years later, the goal of practical capacity approaching codes came within reach. Since that time, the area of channel coding has undergone a remarkable revival, and in areas such as space and satellite communication, digital video broadcasting, wireless telephony, and digital magnetic recording, older methods are being replaced by newer, less complex, and better performing codes.

The special issue solicits papers that present original and unpublished work on topics including, but not limited to:

- Turbo codes, including parallel, serial, and hybrid concatenation
- Repeat-accumulate type codes
- LDPC codes and codes on graphs
- Algebraic and protograph-based constructions of LDPC codes
- Iterative decoding methods
- Density evolution and EXIT chart techniques
- Performance bounds for iterative decoding
- Capacity approaching codes in networks, coded modulation, and MIMO systems
- Fountain (rateless) codes for packet erasure channels
- VLSI implementation of capacity approaching codes

Papers stressing applications are particularly encouraged. Prospective authors should follow the IEEE JSAC manuscript format described in the [information for authors](#). The paper should be formatted to print on either A4 or letter paper with no more than 20 double-spaced pages, excluding illustrations and figures. Prospective authors should send a PDF version of their manuscript with a separate cover letter (in word or text format), which contains the paper title, authors with contact information, and a 150-word abstract, to Prof. Daniel Costello.

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