



IEEE GLOBECOM Workshop on Channel Coding beyond 5G

<https://globecom2021.ieee-globecom.org/workshop/ws-07-workshop-channel-coding-beyond-5g>

Call for Workshop Papers

Channel coding is a fundamental component in wireless communication. From 2G to 5G, wireless systems have always adopted state-of-the-art channel coding technologies. For example, convolutional codes for 2G, turbo codes for 3G and 4G, as well as polar and low-density parity-check (LDPC) codes for 5G. In turn, the standardization and applications of state-of-the-art channel coding technologies have accelerated the research and development of channel coding. What will channel coding be as the standards continue to evolve? According to past experiences, channel coding schemes need to deliver performance surpassing previous generations: faster data rates, higher reliability, lower complexity, and lower power consumption. They also need to meet a more diverse range of KPIs that are not present in previous generations. As for 6G, some applications will raise the peak data rate to the Tbit/s level (the current eMBB data plane decoding rate is 10-20 Gbit/s), eliminating the block decoding error floor for URLLC, and improving the short block length decoding performance for mMTC toward the finite-length performance bound. In contrast to past experiences, the channel coding performance now has almost reached the theoretical Shannon limit for an additive white Gaussian noise (AWGN) channel, and the Moore's law almost reached the physical limits. Will future standards follow the same path that led us to where we are now, or take a different path guided by new theoretical foundation or evaluation methodologies? Do we need revolutionary channel coding schemes, or design principles? Many fundamental problems remain open.

This workshop aims at bringing together academic and industrial researchers to discuss channel coding beyond 5G. Topics of interest include but are not limited to:

- Novel design principles and coding schemes toward 6G
- Channel coding requirements and applications for 6G
- Polar coding and decoding
- Probabilistic coding, e.g., turbo, LDPC, etc.
- Algebraic coding such as RM, BCH, RS, AG codes, etc.
- High-throughput coding schemes
- Coded shaping and modulation
- Rate matching and HARQ schemes
- Coding and decoding schemes for URLLC/mMTC/etc
- Artificial intelligence/machine learning based coding
- Joint source and channel coding
- Efficient decoding algorithms
- Hardware architecture and implementations
- Testbed and field trials of channel coding schemes
- Performance bounds on coding and decoding

Workshop Co-Chairs

- Dr. Wen Tong, Huawei Technologies Co., Ltd., Canada
- Prof. Erdal Arkan, Bilkent University, Ankara, Turkey
- Prof. Emanuele Viterbo, Monash University, Australia

Executive Committee

- Prof. Alexander Vardy, University of California San Diego, USA
- Prof. Lajos Hanzo, University of Southampton, UK
- Dr. Huazi Zhang, Huawei Technologies Co., Ltd., China

Keynote Speakers

- Prof. Warren J. Gross, McGill University, Canada
- Prof. Hesham Mahdavi, University of Michigan Ann Arbor, USA

Technical Program Committee

- Prof. Baoming Bai, Xidian University, China
- Prof. Alexios Balatsoukas-Stimming, Eindhoven University of Technology, Netherlands
- Prof. Jean-Claude Belfiore, Huawei Technologies, France
- Mr. Sebastian Cammerer, University of Stuttgart, Germany
- Prof. Li Chen, Sun Yat-sen University, China
- Prof. Pascal Giard, École de technologie supérieure, Canada
- Prof. Warren Gross, McGill University, Canada
- Prof. Hamed Hassani, University of Pennsylvania, USA
- Dr. Seyyed Ali Hashemi, Stanford University, USA
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- Dr. Ingmar Land, Huawei Technologies, France
- Prof. Francis C.M. Lau, Hong Kong Polytechnic University, Hong Kong, China
- Prof. Michael Lentmaier, Lund University, Sweden
- Dr. Bin Li, Huawei Technologies, China
- Prof. Cong Ling, Imperial College London, UK
- Prof. Rongke Liu, Beihang University, China
- Prof. Gianluigi Liva, German Aerospace Center, Germany
- Prof. Xiao Ma, Sun Yat-sen University, China
- Prof. Marco Mondelli, Institute of Science and Technology, Austria
- Prof. Kai Niu, Beijing University of Posts and Telecommunications, China
- Mr. Mohammad Rowshan, Monash University, Australia
- Prof. Ido Tal, Technion, Israel
- Prof. Stephan ten Brink, University of Stuttgart, Germany
- Prof. Peter Trifonov, ITMO University, Russia
- Prof. Lele Wang, University of British Columbia, Canada
- Prof. Norbert Wehn, University of Kaiserslautern, Germany
- Prof. Min Ye, Tsinghua-Berkeley Shenzhen Institute, China
- Prof. Jinhong Yuan, University of New South Wales, Australia
- Prof. Zhaoyang Zhang, Zhejiang University, China

Important Dates

Paper submission deadline: July 5, 2021
 Acceptance announcement: September 15, 2021
 Final paper submission: November 15, 2021

Submission Guidelines

The workshop accepts only original and previously unpublished papers. All submissions must be formatted in standard IEEE camera-ready format (double-column, 10pt font). The maximum number of printed pages is six including figures without incurring additional page charges (6 pages plus 1 additional page allowed with a charge for the one additional page of USD 100 if accepted)