

IEEE ICC 2014
Symposium on Selected Areas in Communications
Data Storage Track

Sponsoring Technical Committee

Data Storage Technical Committee

Co-Chair

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Scope and Motivation

Data storage is at the core of the information technology revolution, from the smartphones in our hands to data centers in the cloud. Hard disk drives, which have long been the pillar of data storage technologies, have recently been joined by flash memories, and new types of non-volatile memory devices are already emerging on the technology horizon. In addition, massive distributed storage networks have arisen to provide ubiquitous access to data. These new and existing systems pose novel problems of storage density, reliability, efficiency and security. Signal processing and coding techniques are the foundation for solving these problems. While storage channel models are fundamentally communication channels, the unique demands of recording and storage create new challenges to maintain the pace of growth.

The goal of this Data Storage Track is to bring together researchers to present novel and significant results on signal processing and coding for data storage.

Main Topics of Interest

- Error-correcting codes for storage channels and distributed storage networks
- Information theory for storage
- Channel and noise characterization for magnetic recording, flash memories and emerging memory technologies
- Network coding techniques for distributed storage networks
- Signal processing and detection methods for storage channels
- Two-dimensional intersymbol-interference
- Signal processing for shingled writing
- Modulation codes and run-length limited codes
- Circuit design for coding, detection, and read/write channels
- Security for cloud storage and storage devices
- Novel and emerging storage media: optical, holography, PCM, MRAM, RRAM, etc.
- Energy-efficient designs for storage

Biography of Co-Chair

Brian M. Kurkoski received the B.S. degree from the California Institute of Technology in 1993, and then worked in industry for several years. He received the M.S. and Ph.D. degrees from the University of California San Diego in 2000 and 2004, respectively. He was at the University of Electro-Communications in Tokyo, Japan, first as a postdoctoral researcher from 2004 to 2006, and then as an Associate Professor from 2007 to 2012. He is currently an Associate Professor at the Japan Advanced Institute of Science and Technology (JAIST) in Nomi, Japan. Since 2010, he has been an associate editor for IEICE Transactions on

Fundamentals of Electronics, Communications and Computer Sciences. He was an organizer of the Workshop on Coding for Flash Memories (Japan) in 2010 and 2012, and has served as a TPC member for IEEE Globecom, ISITA and other conferences. His research interests include coding theory, information theory, communication theory and their application to storage systems.