

CALL FOR PAPERS
IEEE Journal on Selected Areas in Communications
Communication Methodologies for the Next-Generation Storage Systems

Results from information and communication theory have been used with phenomenal success in data storage systems, and have helped computer storage become ubiquitous and cheap. However, currently available solutions have hit a performance wall: existing approaches are designed for simpler channels, and do not match the needs of new storage technologies where the data must be packed as densely as possible on increasingly adverse mediums. Such performance provisioning not only violates fundamental information-theoretic laws but directly increases the cost of a storage system. At the device level, recent advances in emerging data storage technologies, such as non-volatile memories (NVM), bit-patterned media recording (BPMR) and heat-assisted magnetic recording (HAMR) are bound to transform the storage industry. These technologies require the information to be stored and accessed in an asymmetric manner. At the system level, massive distributed storage networks, data centers and cloud storage systems desperately need new coding schemes to improve storage efficiency.

The purpose of this issue is to provide a synthesized source of recent research results and to serve as a springboard for future work in this emerging area. We invite both theoretical and applied papers. The possible topics include, but are not limited to:

- Device-level channel modeling for emerging storage technologies
- Analysis of novel recording paradigms and performance evaluation
- Information theory and fundamental data transmission limits for new storage channels
- Practical coding methods cognizant of underlying physical constraints
- Innovative signal processing algorithms and methods for emerging data memories
- Coding and communication techniques for cloud storage and distributed storage networks
- Architecture and design of large-scale storage subsystems based on new non-volatile memories
- Security and data compression for data centers

Original, previously unpublished research articles will be considered. Authors should follow the IEEE J-SAC Information for Authors: <http://www.jsac.ucsd.edu/Guidelines/info.html>

Prospective authors are requested to submit their manuscripts according to the following timetable (via EDAS or by sending the manuscript to email: JSAC13storage@gmail.com).

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