Pradeep Sarvepalli

Contact

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Research Interests Coding theory, quantum cryptography, quantum algorithms, measurement based computation, quantum fault tolerance, graph theory, number theory, matroids.

Education

Ph. D., Computer Science, Aug 2008 — Texas A&M University, USA
Thesis : "Quantum stabilizer codes and beyond".
M. S., Electrical Engineering, Aug 2003 — Texas A&M University, USA
B. Tech., Electrical Engineering, Jul 1997 — Indian Institute of Technology, Madras, India

Employment

Postdoctoral Fellow, Georgia Institute of Technology, Atlanta — Dec 2011 – present

Postdoctoral Fellow, University of British Columbia, Vancouver — Jan 2009 – Aug 2011

IC Design Engineer, Texas Instruments India, Bangalore — Jul 1997 – Jul 2001

- Job description: Design of analog and mixed signal circuits–among them are analog filters for ADSL codecs, FIR filters for sigma delta converters, IIR digital filters, pipelined analog to digital converters (ADC) for DSL applications.

Select Publications

1. P. Sarvepalli and R. Raussendorf. Efficient Decoding of Topological Color Codes. Accepted Phys. Rev. A. 2012
2. P. Sarvepalli and R. Raussendorf. Matroids and quantum secret sharing schemes. *Phys. Rev. A 81*, 052333, 2010.
3. A. Klappenecker and P. K. Sarvepalli. Clifford code constructions of operator quantum error correcting codes. *IEEE Trans. Inform. Theory*, 54(12):5760–5765, 2008.
4. A. Klappenecker and P. K. Sarvepalli. On subsystem codes beating the quantum Hamming or Singleton bound. *Proc. Roy. Soc. A*, 463, 2887–2905, 2007.
5. S. A. Aly, A. Klappenecker, and P. K. Sarvepalli. On quantum and classical BCH codes. *IEEE Trans. Inform. Theory*, 53(3):1183–1188, 2007.
6. A. Ketkar, A. Klappenecker, S. Kumar, and P. K. Sarvepalli. Nonbinary stabilizer codes over finite fields. *IEEE Trans. Inform. Theory*, 52(11):4892–4914, 2006.
7. P. K. Sarvepalli and A. Klappenecker. Encoding subsystem codes with and without noisy gauge qubits. (Best Paper Award) In Proc. ICQNM 2009, *The Third International Conference on Quantum, Nano and Micro Technologies*, February 1-6, 2009.

Preprints

1. R. Raussendorf, P. Sarvepalli, T.-C. Wei, and P. Haghnegahdar. Measurement-based quantum computation–a quantum-mechanical toy model for spacetime?, 2011.
2. P. Sarvepalli and P. Wocjan. Quantum algorithms for one-dimensional infrastructures, arXiv:1106.6347, 2011.

Invited Presentations

— Topological color codes over higher alphabet. IEEE Information Theory Workshop, Dublin, Ireland, Aug 30–Sep 3, 2010.

— Quantum secret sharing, Matroids and stabilizer codes. Canadian Mathematical Society Summer Meeting, New Brunswick, 2010.

— Matroids in quantum computing and quantum cryptography. Applications of Matroid Theory and Combinatroial Optimization to Coding Theory, BIRS Banff, Aug 2–7, 2009.

Patents

F. A. Mujica, U. Dasgupta, S. K. Oswal, M. Ali, P. Sarvepalli, P. Easwaran, D. N. Basu. "Digital timing recovery method for communication receivers," US Patent 6983032.

Computer Skills C++, Matlab, LaTeX.