

## **Ramanujan Graphs in the Construction of LDPC Codes**

**Walter H. Chen**  
**Cornell University, Ithaca, NY, 14853**  
**whc7@cornell.edu**

### **Abstract**

Low-density parity-check (LDPC) codes have recently become a popular interdisciplinary area of research. Widely unknown after their invention by Gallager in 1965, the existence of efficient encoding and decoding algorithms coupled with performance that operates near theoretical limits has led to the rediscovery of LDPC codes. This paper will address the reasoning and construction of LDPC codes with Ramanujan graphs.