

From ???@??? Mon Apr 05 23:52:59 1999  
Return-Path: <psiegel@cw.cucsd.edu>  
Received: from mailbox2.ucsd.edu ([132.239.1.54]) by mail3.san.rr.com  
(Post.Office MTA v3.5.3 release 223 ID# 0-53939U80000L80000S0V35)  
with ESMTTP id com for <hpfister@san.rr.com>;  
Mon, 5 Apr 1999 16:29:03 -0700  
Received: from split.ucsd.edu (split.ucsd.edu [132.239.24.94])  
by mailbox2.ucsd.edu (8.9.1a/8.9.1) with ESMTTP id QAA24841  
for <hpfister@ucsd.edu>; Mon, 5 Apr 1999 16:30:52 -0700 (PDT)  
Received: from localhost by split.ucsd.edu (8.9.3/8.9.1) with ESMTTP id  
QAA07869;  
Mon, 5 Apr 1999 16:30:49 -0700 (PDT)  
X-Authentication-Warning: split.ucsd.edu: psiegel owned process doing -bs  
Date: Mon, 5 Apr 1999 16:30:49 -0700 (PDT)  
From: Paul Siegel <psiegel@cw.cucsd.edu>  
X-Sender: psiegel@split.ucsd.edu  
To: andre desrosiers <andre.desrosiers@conexant.com>,  
bruce moision <bmoision@cw.cucsd.edu>,  
henry pfister <hpfister@ucsd.edu>,  
hugo tullberg <htullber@ece.ucsd.edu>, jilei hou <jhou@cw.cucsd.edu>,  
kai tang <ktang@ece.ucsd.edu>, mats oberg <moberg@cw.cucsd.edu>,  
pranesh sinha <pranesh.sinha@conexant.com>  
Subject: Forwarded mail....  
Message-ID: <Pine.GSO.4.05.9904051630020.7620-100000@split.ucsd.edu>  
MIME-Version: 1.0  
Content-Type: TEXT/PLAIN; charset=US-ASCII  
Status: OR

Hi. Some of you may be interested in this new  
paper from Rudi Urbanki, et al.

Paul

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\*\*\*\*\*

----- Forwarded message -----  
Date: Mon, 5 Apr 1999 18:19:26 -0400  
From: ART@scarpia.research.bell-labs.com  
To: psiegel@ucsd.edu

Dear Colleague:

In recent weeks we designed sequences of low-density parity check codes that provably perform at rates extremely close to the Shannon capacity. For instance, our best code of rate 1/2 is asymptotically less than 0.06dB away from capacity for the AWGN channel. Simulation results indicate that for a length of 1,000,000 we can achieve an error probability of  $10^{-6}$  at 0.13dB from capacity. Our codes are built from highly irregular bipartite graphs with carefully chosen degree patterns on both sides, by optimizing the threshold obtained in our previous paper.

Moreover, the paper gives some more theoretical insight into the behavior of the decoding process.

A preprint of our paper, entitled  
"Design of provably good low-density parity check codes"  
can be obtained at

<http://cm.bell-labs.com/who/{ruediger or tjr}/pub.html>

As always, comments are most welcome.

Best regards,

Tom Richardson  
Amin Shokrollahi  
Ruediger Urbanke