CCSU
DEPARTMENT OF MATHEMATICAL SCIENCES

COLLOQUIUM

Friday, February 27
2:00 – 3:00 PM
Maria Sanford, Room 101

CXN YOU XNDERXTAND XHE TITXE OF TXIS TXLK? (THE BASICS OF ERROR-CORRECTING CODES)

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ABSTRACT

The experiment of deleting every third or fourth letter from an example of English prose -- and finding that it remains quite readable – shows that English contains a fair amount of redundancy. Even if (say) a telegraphic system for transmitting information is quite unreliable, it will still, usually, be possible to determine what the original message was. This is error-correction in a nutshell; make sure that a message contains sufficient redundancy that -- even if it gets mangled in transmission -- we can retrieve the original meaning.

Error-correcting codes are in ubiquitous use these days: cellular telephony, CDs and DVDs, computer memory, and deep space communication (to name just a few key technologies) all make use of error-correcting codes. In the theoretical world we also find a multitude of uses for error-correcting codes -- constructions for lattices in n-dimensional space, exceptional Lie algebras, sporadic simple groups (to name just another few).

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