1018-94-208 **David R Grant*** (grant@boulder.colorado.edu), Department of Mathematics, University of Colorado at Boulder, Boulder, CO 80309-0395, and **Mahesh K Varanasi** (varanasi@colorado.edu), Dept of Electrical and Computer Engineering, University of Colorado at Boulder, Boulder, CO 80309-0425. *Number Theoretic Aspects of Space-Time Codes.*

In wireless communications systems of the not-too-distant future, transmitters and receivers (like a cellphone) may send and receive information from multiple antennas. So unlike traditional single antenna communication channels, where codewords are vectors, multiple-antenna or space-time codewords are now naturally matrices, and the notion of distance between them depends on how the channel is modeled.

We present a variety of ways number theory plays a role in the theory and design of space-time codes. (Received March 06, 2006)