

1014-E1-1185 **Mike Bardzell*** (mjbardzell@salisbury.edu), Dept. Math and CS, Salisbury University, Salisbury, MD 21801, and **Tyler Evans** (te8@humboldt.edu). *Number Theoretic Applications to Group Generated Cellular Automata*. Preliminary report.

In this talk we will present number theoretic applications to cellular automata generated over finite abelian groups. Periodicity of certain finite systems can often be understood using results such as Fermat's Little Theorem. For infinite systems a plethora of binomial identities have been investigated. For some of these identities results of Kummer and Lucas can be applied. Many of these results are products of undergraduate research projects. Ways to implement these ideas into undergraduate number theory and abstract algebra courses will also be discussed. (Received September 27, 2005)