

1046-D1-1613      **Jeffrey A Ehme\*** ([jehme@spelman.edu](mailto:jehme@spelman.edu)), Dept of Mathematics, Box 214, 350 Spelman Lane SW, Spelman College, Atlanta, GA 30314. *Finding Irreducible Polynomials Using Miller Rabin Type Tests.*

Irreducible polynomials play a vital role in constructing the finite fields that are commonly used in cryptology. In this presentation we will review the pertinent mathematics needed to extend the Miller Rabin test to arbitrary finite fields and then apply this test to find polynomials that are “probably” irreducible. Along the way we will discuss fast methods for finding square and cube roots in finite fields. (Received September 16, 2008)