NKU NORTHERN KENTUCKY UNIVERSITY

Department of
Mathematics and Statistics

James Sehnert Lecture

Monday, October 25, 2010, 7:30 PM
Otto Budig Theater

An Introduction to Cryptography and Public Key Encryption

Cryptology is the science of both hiding information, and overcoming methods for doing so. Modern cryptography plays an integral, if largely unseen, role in current culture and is hugely dependent on mathematics for strength and speed. In particular, mathematics is what makes implementation of public key cryptography possible.

We will introduce the basics of cryptography using illustrative historical examples. We will then examine more recent developments focusing on the mathematics behind RSA and the Diffie-Hellman key exchange, the two most common public key algorithms.

Navah Langmeyer is a senior cryptologic mathematician at the National Security Agency in Maryland. She grew up in the Greater Cincinnati area, including several years spent in Northern Kentucky. While her doctoral thesis at the University of Michigan was in geometric function theory, a subfield of complex analysis, personal and professional considerations steered Navah to employment at the NSA. There, she has enjoyed applying her analytic skills to wide variety of problems ranging from theoretical mathematics to complex communication protocols, and taken advantage of opportunities to live and work in California and England. She regularly visits schools and summer programs to discuss cryptology and mathematics at NSA, and to encourage students to pursue studies in mathematics. Outside of work, Navah has interests in travel, cooking and baking, quilting, yoga, swimming, and when location permits, surfing, rock climbing, triathlon, and hiking, often with her husband but never with her cat.