1154-05-545 **Amanda M Harsy*** (harsyram@lewisu.edu), Lewis University, One University Parkway, Unit #298, Department of Computer and Mathematical Scien, Romeoville, IL 60446, and **Cory Johnson**, **Eric Redmon**, **Paul Buldak**, **James Sparks** and **Miles Mena**. *Using Graph Theoretical Designs of Self Assembling DNA to Motivate Undergraduate Research.* Preliminary report.

Motivated by the recent advancements in nanotechnology and the discovery of new laboratory techniques using the Watson-Crick complementary properties of DNA strands, formal graph theory has recently become useful in the study of self-assembling DNA complexes. Construction methods developed with concepts from undergraduate level graph theory have resulted in significantly increased efficiency for laboratory processes. One recent focus in DNA nanotechnology is the formation of nanotubes using lattice structures. These nanotubes are thought to have wide-ranging potential, serving as containers for nano-cargos and as drug-delivery vehicles. Rules governing the self-assembly of these nanotubes are not yet well understood, and this naturally creates open problems in applied graph theory. In this talk, we give an overview of lattice-based construction of nanostructures and explore related design strategy problems. We highlight some of our undergraduate student projects and outcomes. (Received September 06, 2019)