

Undergraduate Math Colloquium

Jo Nelson's research group

Symplectic Embeddings on the Virtual BeECH

October 26th, 4-5pm CDT

Meeting ID: 987 5099 0580

Passcode: 808449

Abstract:

A symplectic manifold is an even dimensional manifold, which admits a nondegenerate closed 2-form, an object akin to $dx dy$ or $r dr d\theta$ from multivariable calculus. This object allows one to make 2-dimensional measurements (oriented area) within the manifold. A major question in the field is when one symplectic manifold can be symplectically embedded into another, leading to efforts in constructing and obstructing symplectic embeddings. This is particularly interesting and challenging because of the mixture of rigidity (structure) and flexibility (lack of structure) in symplectic geometry. Our research focuses on obstructions to symplectic embeddings of four-dimensional polydisks into four-dimensional ellipsoids. In this talk, we will give an overview of symplectic manifolds, symplectic embedding problems, and obstruction tools like symplectic capacities and the “Beyond ECH” methods. We will then provide a sketch of proof of our new result from the past summer using the former method.