

1171-57-94

Anubhav Mukherjee* (anubhavmaths@gatech.edu), 686 Cherry St, NW, Atlanta, GA 30313.

On exotic diffeomorphisms of 4-manifolds with boundary. Preliminary report.

We proposed the conjecture that every 3-manifold Y bounds a 4-manifold W that admits a self diffeomorphism which is topologically isotopic to identity but not smoothly (such diffeomorphisms are called exotic diffeomorphisms). For closed 4-manifolds several researchers detected such diffeomorphisms using gauge-theoretic technique. But those techniques may not be generalized for the manifold with boundary cases. In this work we defined a diffeomorphism invariant for 4-manifolds with boundary and using this we studied the above conjecture. Contact structures on the boundary 3-manifolds are effectively used, and this is what did not appear in the preceding study for closed 4-manifolds. This is a joint work with Nobuo Iida, Hokuto Konno and Masaki Taniguchi. (Received August 08, 2021)