

L^p -geometry of diffeomorphism groups: old and new results

Michael BRANDENBURSKY¹

¹ Ben-Gurion

In this talk I will discuss a number of old and new results on the large-scale geometry of the L^p -metrics on the group of area-preserving diffeomorphisms of a compact orientable surface. In particular, I will show how to use in a key way the Fulton-MacPherson type compactification of the configuration space of n points on the surface, due to Axelrod-Singer and Kontsevich, in order to apply the Schwarz-Milnor lemma to configuration spaces, a natural approach which is carried out successfully for the first time. As a consequence, I will show that all right-angled Artin groups admit quasi-isometric embeddings into the group of area-preserving diffeomorphisms of compact orientable surface endowed with the L^p -metric, and that all Gambaudo-Ghys quasi-morphisms, coming from the braid group on n strands, are Lipschitz with respect to this metric. This was conjectured to hold, yet proven only for low values of n and the genus g of the surface. (joint work with M. Marcinkowski and E. Shelukhin)