

Title

NON-ORIENTABLE CONTACT STRUCTURES ON 3-MANIFOLDS

Abstract:

Since Bennequin's work, it is well known that in 3-dimensional topology, there is a dichotomy between TIGHT and OVERTWISTED contact structures. While overtwisted structures are well understood, the study of tightness from a 3-dimensional perspective is still at its early stage. In most studies, contact structures are always considered orientable. (Recall that a contact 3-manifold is always orientable, but its contact structure does NOT have to be). It is often thought that if one has to deal with a non-orientable structure, one may work with its oriented double cover. Our motivation is to realize that one cannot merely switch to the orientation double cover when studying tightness. In this talk, we will present some first examples of non-orientable tight contact structures which has an overtwisted orientation double cover.