HYPERSURFACES REPRESENTING A CODIMENSION-1 HOMOLOGY CLASS

JOSÉ PEDRO QUINTANILHA

Any 2-dimensional homology class ϕ in a compact oriented smooth 3-manifold can be represented by a (possibly disconnected) properly embedded oriented surface, and in certain situations it is useful to compare distinct (isotopy clsses of) representatives. Specifically, we focus on the question of whether given two such surfaces S, T (up to isotopy), it is possible to find a sequence of surfaces

$$S = S_0, S_1, \ldots, S_k = T$$

all representing ϕ, such that each two consecutive S_i are disjoint.

We will give an affirmative answer to this question by means of a simple proof that exploits a certain combinatorial observation. In contrast with previously known results in the same vein, our proof generalises to ambient manifolds of any dimension: fixing an $(n-1)$-dimensional homology class ϕ for a compact oriented n-manifold, one can connect any two representatives of ϕ by a sequence of homologous codimension-1 submanifolds, such that each two consecutive representatives are disjoint.

The contents of this talk are joint work with Gerrit Herrmann and Stefan Friedl.

Email address: Jose-Pedro.Quintanilha@mathematik.uni-regensburg.de