

MULTISECTIONS OF SURFACE BUNDLES AND BUNDLES OVER S^1

DELPHINE MOUSSARD

Abstract: A multisection is a decomposition of a manifold into 1-handlebodies, where each subcollection of the pieces intersects along a 1-handlebody except the global intersection, which is a closed surface. These generalizations of Heegaard splittings and Gay–Kirby trisections were introduced by Ben Aribi, Courte, Golla, and the author, who proved in particular that any 5-manifold admits such a multisection. In arbitrary dimension, we show that two classes of manifolds admit multisections: surface bundles and fiber bundles over the circle, whose fiber itself is multisected. We provide explicit constructions, with examples.

2020 Mathematics Subject Classification: 57M99, 57Q99, 57R99.

Key words: trisection, multisection, fiber bundle.