ミルナー不変量とハンドル体絡み目の分類について

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This talk is based on the paper [2] which is the joint work with Atsuhiko Mizusawa.

A handlebody-link [1, 6] is a disjoint union of embeddings of handlebodies in the 3-sphere. An HL-homotopy is an equivalence relation on handlebody-links generated by ambient isotopies and self-crossing changes, which is analogous to link-homotopy of links [3]. In [5], Mizusawa and Nikkuni showed that the HL-homotopy classes of 2-component handlebody-links were classified completely by the linking numbers for handlebody-links, which was defined by Mizusawa in [4]. In [2], we construct HL-homotopy invariants for handlebody-links by using Milnor's $\overline{\mu}$-invariants for links [3]. We then give a necessary and sufficient condition of that a handlebody-link is HL-homotopic to a separable one by the extended Milnor's $\overline{\mu}$-invariants. Here, a handlebody-link is separable if there exists a disjoint union of 3-balls such that each component of the handlebody-link is contained in a distinct 3-ball. Moreover, we give a bijection between the set of HL-homotopy classes of n-component handlebody-links with some assumption and a quotient of a tensor product of $\mathbb{Z}-$modules by the action of the general linear group.

References

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