

Zeitschrift: L'Enseignement Mathématique
Herausgeber: Commission Internationale de l'Enseignement Mathématique
Band: 35 (1989)
Heft: 1-2: L'ENSEIGNEMENT MATHÉMATIQUE

Artikel: KNOTTING CODIMENSION 2 SUBMANIFOLDS LOCALLY
Autor: Masuda, Mikiya / Sakuma, Makoto

Bibliographie
DOI: <https://doi.org/10.5169/seals-57360>

Nutzungsbedingungen

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften auf E-Periodica. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. Das Veröffentlichen von Bildern in Print- und Online-Publikationen sowie auf Social Media-Kanälen oder Webseiten ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. [Mehr erfahren](#)

Conditions d'utilisation

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. La reproduction d'images dans des publications imprimées ou en ligne ainsi que sur des canaux de médias sociaux ou des sites web n'est autorisée qu'avec l'accord préalable des détenteurs des droits. [En savoir plus](#)

Terms of use

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. Publishing images in print and online publications, as well as on social media channels or websites, is only permitted with the prior consent of the rights holders. [Find out more](#)

Download PDF: 27.04.2026

ETH-Bibliothek Zürich, E-Periodica, <https://www.e-periodica.ch>

Case 3. The case where $n \equiv 0(4)$ and p is even. In this case $L_{n+3}(\mathbf{Z}_p, 1) \simeq \mathbf{Z}_2$. Since the value $\gamma_* \sigma(h) \in L_{n+3}(\mathbf{Z}_p, 1)$ is additive with respect to connected sum, it necessarily vanishes for $(S^{n+2}, K) \# (S^{n+2}, K)$.

The rest of the argument is the same as that in Step 5. This proves the theorem. Q.E.D.

REFERENCES

- [AS] ATIYAH, M. F. and I. M. SINGER. The index of elliptic operators III. *Ann. of Math.* 87 (1968), 546-604.
- [Ba] BAK, A. Odd dimensional surgery groups of odd torsion groups vanish. *Topology* 14 (1975), 367-374.
- [Br] BROWDER, W. The Kervaire invariant of framed manifolds and its generalization. *Ann. of Math.* 90 (1969), 157-186.
- [DF] DUNWOODY, M. J. and R. A. FENN. On the finiteness of higher dimensional knot sums. *Topology* 26 (1987), 337-343.
- [K] KERVAIRE, M. Les nœuds de dimension supérieure. *Bull. Soc. Math. de France* 93 (1965), 225-271.
- [KW] KERVAIRE, M. and C. WEBER. A survey of multidimensional knots. *Knot theory*, Lect. Notes in Math. 685, Springer, pp. 61-134, 1978.
- [La] LAWSON, T. Detecting the standard embedding of \mathbf{RP}^2 in S^4 . *Math. Ann.* 267 (1984), 439-448.
- [Le1] LEVINE, J. Unknotting spheres in codimension two. *Topology* 4 (1965), 9-16.
- [Le2] ——— Knot cobordism in codimension two. *Comment. Math. Helv.* 44 (1969), 229-244.
- [Le3] ——— Knot modules I. *Trans. A.M.S.* 229 (1977), 1-50.
- [Li] LITHERLAND, R. A generalization of the lightbulb theorem and PL I -equivalence of links. *Proc. A.M.S.* 98 (1985), 353-358.
- [Ma] MAEDA, T. Star decompositions along splitting groups. In preparation.
- [Ms] MASUDA, M. An invariant of manifold pairs and its applications. *J. Math. Soc. of Japan*. To appear.
- [MI] MILNOR, J. W. Whitehead torsion. *Bull. A.M.S.* 72 (1966), 358-426.
- [MS] MILNOR, J. W. and J. D. STASHEFF. *Characteristic classes*. Ann. of Math. Studies 76, Princeton, 1974.
- [My] MIYAZAKI, K. Conjugation and the prime decomposition of knots in closed, oriented 3-manifolds. Preprint.
- [MB] MORGAN, J. and H. BASS. *The Smith conjecture*. Pure Appl. Math. 112, Academic Press, 1984.
- [R] ROLFSEN, D. *Knots and links*. Math. Lect. Series 7, Publish or Perish Inc. 1976.
- [Sc] SCHULTZ, R. Smooth structures on $S^p \times S^q$. *Ann. of Math.* 90 (1969), 187-198.
- [Sm1] SUMNERS, D. W. On the homology of finite cyclic coverings of higher-dimensional links. *Proc. A.M.S.* 46 (1974), 143-149.
- [Sm2] ——— Smooth \mathbf{Z}_p -actions on spheres which have knots pointwise fixed. *Trans. A.M.S.* 205 (1975), 193-203.

- [T] TROTTER, H. On S -equivalence of Seifert matrices. *Inv. Math.* 20 (1973), 173-207.
- [V] VIRO, O. Ja. Local knotting of submanifolds. *Math. USSR. Sbornik* 19 (1973), 166-176.
- [W11] WALL, C. T. C. *Surgery on compact manifolds*. Academic Press, 1970.
- [W12] ——— Classification of Hermitian forms VI. *Ann. of Math.* 103 (1976), 1-80.
- [Wg] WAGNER, D. H. On free products of groups. *Trans. A.M.S.* 84 (1957), 352-378.

(Reçu le 18 février 1988)

Mikiya Masuda

Department of Mathematics
Osaka City University
Sumiyoshi, Osaka 558
(Japan)

Makoto Sakuma

Department of Mathematics
College of General Education
Osaka University
Toyonaka, Osaka 560
(Japan)