

A FACTORIZATION OF THE CONWAY POLYNOMIAL AND COVERING LINKAGE INVARIANTS

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(Joint work with Akira Yasuhara)

J. P. Levin showed that the Conway polynomial of a link is a product of two factors: one is the Conway polynomial of a knot which is obtained from the link by banding together the components; and the other is determined by the $\bar{\mu}$ -invariants of the link. We give another description of the latter factor: the determinant of a matrix whose entries are linking pairings in the infinite cyclic covering space of the knot complement, which take values in the quotient field of $\mathbb{Z}[t, t^{-1}]$. In addition, we give a relation between the Taylor expansion of a linking pairing around $t = 1$ and derivation on links which is invented by T. D. Cochran. In fact, the coefficients of the powers of $t - 1$ will be the linking numbers of certain derived links in S^3 . Therefore, the first non-vanishing coefficient of the Conway polynomial is determined by the linking numbers in S^3 . This generalizes a result of J. Hoste.

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