A FACTORIZATION OF THE CONWAY POLYNOMIAL
AND COVERING LINKAGE INVARIANTS

TATSUYA TSUKAMOTO

(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 $\mu$-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.

WASEDA UNIVERSITY