ROTATION AND SIGNATURE INVARIANTS

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Rotation was introduced as a generalization of mutation by R.P.Anstee, J.H.Przytycki and D.Rolfsen in 1987. In this talk we show that the Tristram-Levine signature is preserved by orientation-preserving rotation. Moreover, we show that any link invariant obtained from the characteristic polynomial of the Goeritz matrix, including Murasugi's signature, is not changed by any rotation. In 2001, P.Traczyk showed that the Conway polynomials of any pair of orientation-preserving rotants coincide. But it was still an open problem if any orientation-reversing rotations preserve the Conway polynomials. We show that there is a pair of orientation-reversing rotants which do not share the same Conway polynomial. This provides a negative answer for the problem.

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