Generating Links That Are Both Quasi-Alternating and Almost Alternating

Authors : Hamid Abchir, Mohammed Sabak2

Abstract : We construct an infinite family of links which are both almost alternating and quasi-alternating from a given either almost alternating diagram representing a quasi-alternating link, or connected and reduced alternating tangle diagram. To do that we use what we call a dealternator extension which consists in replacing the dealternator by a rational tangle extending it. We note that all non-alternating and quasi-alternating Montesinos links can be obtained in that way. We check that all the obtained quasi-alternating links satisfy Conjecture 3.1 of Qazaqzeh et al. (JKTR 22 (6), 2013), that is the crossing number of a quasi-alternating link is less than or equal to its determinant. We also prove that the converse of Theorem 3.3 of Qazaqzeh et al. (JKTR 24 (1), 2015) is false.

1

Keywords : quasi-alternating links, almost alternating links, tangles, determinants Conference Title : ICLDTKT 2021 : International Conference on Low-Dimensional Topology and Knot Theory

Conference Location : Berlin, Germany

Conference Dates : July 22-23, 2021