

YMC2004 TALK ABSTRACT

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Title: Relations Between Crosscap Number and Genus of Torus Knots

Description:

In 1978 B.E. Clark defined crosscap number,  $c(K)$ , of a knot to be the minimal genus of all non-orientable surfaces which span the knot and gave an upper bound for the number in terms of the genus:  $c(K) \leq g(K) + 1$ , where  $g(K)$  is the genus of the knot. The obvious next question is whether an upper bound for the genus exists in terms of the crosscap number. In this talk I will exhibit a family of torus knots that shows that this cannot be the case and in so doing provide an answer to an open question posed by Colin Adams. Also I conjecture

$c(K) \leq \lceil (cr(K) + 4)/12 \rceil + 1$  for a torus knot where  $cr(K)$  is the crossing number and  $\lceil \cdot \rceil$  denotes the greatest integer function. I prove the conjecture for  $(p, q)$  torus links such that either  $p$  or  $q$  is even.