The band-unknotting number of a knot

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Abstract. This is a joint work with Ryuji Higa. A band-move is a local move of a link diagram which is performed by adding a band. We define the band-unknotting number of a knot K to be the minimum number of band-moves needed to transform a diagram of K into that of the trivial knot. Note that, in the definition of the band-unknotting number of a knot K, we may use Reidemeister moves after applying a band-move and the sequence from a diagram of K to that of the trivial knot may contain a diagram of a link.

In this talk, we show that the band-unknotting number of a knot K is less than or equal to half the crossing number of K and the equality holds if and only if K is the trivial knot or the figure-eight knot. To prove this, we give a characterization of the figure-eight knot.