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.