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On Virtual Crossing Numbers for Virtual Knots

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The aim of the present paper is to prove that the minimal number of virtual crossings for some families of virtual knots grows quadratically with respect to the minimal number of classical crossings. All previously known estimates for virtual crossing number were principally no more than linear in the number of classical crossings (or, what is the same, in the number of edges of a virtual knot diagram) and no virtual knot was found with virtual crossing number greater than the classical crossing number.

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