Phil Huneke and the Negami 1,2, infinity conjecture

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Abstract

We prove the Negami 1, 2, infinity conjecture: Every finite covering of a nonprojective planar finite graph is nonplanar. From previous work it suffices to show the result for the specific graph $K_{2,2,2,1} = K_7 - 3K_2$. We prove the result for this graph by classifying all finite planar coverings of $K_{3,3}$, showing that such coverings must be even, and that at least $n+1$ edges of $K_{2,2,2,1}$ cannot be added in the plane to any planar $2n$-fold covering of $K_{3,3}$ in $K_{2,2,2,1}$.