

The homotopy type of the independence complex of ternary graphs

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Abstract: A graph is called a ternary graph if it has no induced cycle of length divisible by 3. We prove Engström's conjecture that the independence complex of a ternary graph is either contractible or homotopy equivalent to a sphere.

Our result strengthens a result by Zhang and Wu, which verifies a conjecture of Kalai and Meshulam about the total Betti number of the independence complex of ternary graphs.