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Tightness of a MaxCut Lower Bound via Vector Chromatic Number

Recently, Balla, Janzer, and Sudakov showed a lower bound on the MaxCut in terms of the vector chromatic number, recovering known results on the MaxCut of H-free graphs. We show that their bound is tight, providing a construction that achieves a value arbitrarily close to the optimal constant. This answers a question raised by Elphick. Our construction is a modification of the geometric graph used by Feige and Schechtman to establish the integrality gap for the Goemans–Williamson semidefinite relaxation of the MaxCut.