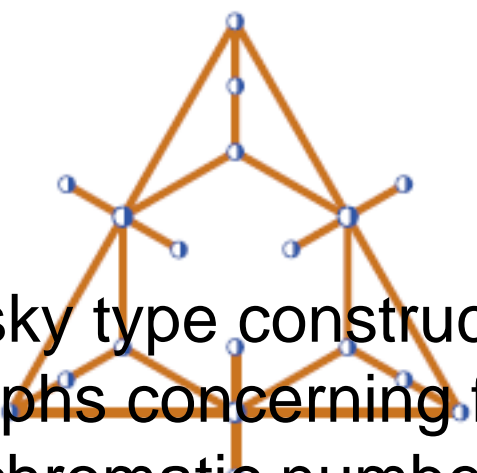


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Mycielsky type construction for hypergraphs concerning fractional chromatic number

Content :

It is known the existence of sparse hypergraphs with high chromatic number. A classical measure of sparseness is the clique number. The fractional chromatic number lies between the clique number and the chromatic number. In this work we prove the existence of uniform hypergraphs with fixed clique number and arbitrarily large fractional chromatic number. Our proof is constructive and provides, in particular, as the Mycielsky construction does, a family of r -uniform hypergraphs without complete r -hypergraphs of order $r + 1$, and high (fractional) chromatic number. We shall remark that our construction is not a straightforward generalization of Mycielsky's. Finally we describe, by forbidden induced subgraphs, classes of 2- and 3-uniform hypergraphs with chromatic number upper bounded by a linear function of its clique number.

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