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**Dhruv Mubayi\*** (mubayi@math.uic.edu) and **Vojtech Rodl**. *On a conjecture of Berge and Simonovits about hypergraph products.*

The hypergraph product  $G \square H$  has vertex set  $V(G) \times V(H)$ , and edge set  $\{e \times f : e \in E(G), f \in E(H)\}$ , where  $\times$  denotes the usual cartesian product of sets. We construct a hypergraph sequence  $\{G_n\}$  for with  $\chi(G_n) \rightarrow \infty$  and  $\chi(G_n \square G_n) = 2$  for all  $n$ . This disproves a conjecture of Berge and Simonovits. On the other hand, we show that if  $G$  and  $H$  are hypergraphs with infinite chromatic number, then the chromatic number of  $G \square H$  is also infinite.

We also provide a counterexample to a “dual” version of their conjecture, by constructing a graph sequence  $\{G_n\}$  with  $\alpha(G_n)/|V(G_n)| \rightarrow 0$  and  $\alpha(G_n \square G_n)/|V(G_n)|^2 \rightarrow 1/2$ . The constant  $1/2$  cannot be replaced by a larger number. This addresses a question of Kostochka. (Received August 24, 2005)