

# Rainbow copies of $C_4$ in edge-colored hypercubes

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(joint work with József Balogh, Bernard Lidick, and Cory Palmer.)

For positive integers  $k$  and  $d$  such that  $4 \leq k < d$  and  $k \neq 5$ , we determine the maximum number of rainbow colored copies of  $C_4$  in a  $k$ -edge-coloring of the  $d$ -dimensional hypercube  $Q_d$ . Interestingly, the  $k$ -edge-colorings of  $Q_d$  yielding the maximum number of rainbow copies of  $C_4$  also have the property that every copy of  $C_4$  which is not rainbow is monochromatic.