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Jeff Kahn and **Jinyoung Park*** (jp1324@math.rutgers.edu), Department of Mathematics, Rutgers University, Hill Center for the Mathematical Sciences, 110 Frelinghuysen Rd., Piscataway, NJ 08854. *The number of 4-colorings of the Hamming cube.*

Let Q_d be the d -dimensional Hamming cube (hypercube) and $N = 2^d$. We discuss the number of proper (vertex) colorings of Q_d given q colors. It is easy to see that there are exactly 2 of 2-colorings, but for $q > 2$, the number of q -colorings of Q_d is highly nontrivial. Since Galvin (2002) proved that the number of 3-colorings is asymptotically $6e^{N/2}$, the other cases remained open so far. In this talk, we prove that the number of 4-colorings of Q_d is asymptotically $6e^{2N}$, as was conjectured by Engbers and Galvin in 2012. The proof uses a combination of information theory (entropy) and isoperimetric ideas originating in work of Sapozhenko in the 1980's. (Received August 04, 2018)