1089-05-384 **Jacques Verstraete*** (jacques@ucsd.edu), 9500 Gilman Drive, La Jolla, CA 92037, and **Bob Chen**, **Jeong Han Kim** and **Michael Tait**. *Coupon colorings of graphs.*

A k*-coupon coloring* of a graph G is a coloring of the vertices with k colors so that the neighborhood of each vertex contains a vertex of each of the k colors. The coupon chromatic number of G is the largest k for which a k-coupon coloring of G exists. The existence of a 2-coupon coloring of a graph corresponds to the so-called Property B of the hypergraph whose edges are the neighborhoods of vertices in the graph; in particular it is known that the coupon chromatic number of a 4-regular graph is always at least 2. We prove that every d-regular graph has coupon chromatic number asymptotically at least $d/(\log d)$ as $d \to \infty$, and that almost every d-regular graph has coupon chromatic number asymptotic to $d/(\log d)$ as $d \to \infty$. Explicit examples of regular graphs with such small coupon chromatic number are Paley graphs. In addition, we discuss coupon colorings of hamming cubes, for instance if Q_d denotes the d-dimensional hypercube then the coupon chromatic number is asymptotic to d as $d \to \infty$ and exactly d when d is a power of two. Some open questions related to coding theory on coupon coloring of hypercubes are presented. (Received February 19, 2013)