1053-05-280 **Guantao Chen*** (gchen@gsu.edu), Department of Mathematics and Statistics, Georgia State University, Atlanta, GA 30303, **Xingxing Yu** (yu@math.gatech.edu), School of Mathematics, Atlanta, GA 30332, and **Wenan Zang** (wzang@maths.hku.hk), Department of Mathematics, the University of Hong Kong, Hong Kong, GA. *Chromatic index involving edge density.*

Let G be a multigraph with finite number of vertices and without loops. Let Δ denote *maximum degree* of G, χ' the chromatic index of G, and let

$$\Gamma = \max\{\frac{2|E(G[U])|}{|U|-1} : \ U \subseteq V, \ |U| \geq 3 \ \text{and} \ \text{odd}\}.$$

Clearly, $\chi' \geq \Delta$. Conversely, Vizing showed that $\chi' \leq \Delta + 1$ if G is a simple graph. Furthermore, Vizing proved that $\chi' \leq \Delta + \mu$, where μ is the maximum number of multiple edges sharing two endvertices. For each $U \subseteq V(G)$, since each matching in the subgraph induced by U contains at most $\lfloor |U|/2 \rfloor$ edges, the inequality $\chi' \geq \Gamma$ holds. Goldberg (1973), Anderson (1977), and Seymour (1979) conjectured that if $\chi' \geq \Delta + 2$ then $\chi' = \Gamma$. Previously, Scheide and, independently, Chen, Yu, and Zang proved that if $\chi' \geq \Delta + \sqrt{\Delta/2}$ then $\chi' = \Gamma$. In this paper, we proved that if $\chi' \geq \Delta + \sqrt[3]{\Delta/2}$ then $\chi' = \Gamma$. (Received September 07, 2009)