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Guantao Chen* (gchen@gsu.edu), Department of Mathematics and Statistics, Georgia State University, Atlanta, GA 30303, **Guangming Jing**, Georgia State University, Atlanta, GA , and **Wenan Zang**, The University of Hong Kong, Hong Kong. *The Goldberg-Seymour Conjecture on Edge-Colorings of Multigraphs.*

Let G be a graph, $\Delta(G)$ be the maximum degree of G and

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

where $E(U)$ is the set of all edges of G with both ends in U . Clearly, $\max\{\Delta(G), \lceil \Gamma(G) \rceil\}$ is a lower bound for $\chi'(G)$, the chromatic index of G . In the 1970s Goldberg and Seymour independently conjectured that $\chi'(G) \leq \max\{\Delta(G) + 1, \lceil \Gamma(G) \rceil\}$. Over the past four decades this conjecture has been a subject of extensive research, and has stimulated a significant body of work. Jing, Zang and I recently confirmed this conjecture. In this talk, I will present some related topics and some ideas behind the proof. (Received January 22, 2019)