1035-05-1249   **Christopher McClain*** (`mcclain@math.ohio-state.edu`), The Ohio State University, Department of Mathematics, 231 West 18th Avenue, Columbus, OH 43210-1174. *Edge Coloring of Multigraphs: Some Results on the Chromatic Structure of Overflow Subgraphs Under Optimal Colorings.* Preliminary report.

In 1964, Vizing published his well known theorem stating that the chromatic index of a multigraph $\chi_E(G)$ is bounded above by $\Delta(G) + \mu(G)$, where $\Delta(G)$ is the maximum degree of a vertex in the graph and $\mu(G)$ is the maximum size of a parallel class of edges. In 1984 M.K. Goldberg conjectured that multigraphs whose chromatic index exceeds $\Delta + 1$ contain dense subgraphs that we call overflow subgraphs. We consider such multigraphs that have at least one χ_E-critical edge and present necessary conditions for the existence of overflow subgraphs, with implications for constructive proofs of Goldberg's conjecture. (Received September 19, 2007)