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Miaomiao Han* (mahan@mix.wvu.edu), 654 Protzman Street, Apt 1, Morgantown, WV 265.5, and **You Lu** and **Rong Luo**. *Neighbor sum distinguishing total coloring of d -degenerate graphs*. Preliminary report.

A proper total k -coloring ϕ of a graph G is a mapping from $V(G) \cup E(G)$ to $\{1, 2, \dots, k\}$ such that no adjacent or incident elements in $V(G) \cup E(G)$ receive the same color. Let $m_\phi(v)$ denote the sum of colors on the edges incident with vertex v and the color on vertex v . A proper total k -coloring of G is called neighbor sum distinguishing if $m_\phi(u) \neq m_\phi(v)$ for each edge $uv \in E(G)$. Let $\chi_\Sigma^t(G)$ be the neighbor sum distinguishing total chromatic number of a graph G . Pilśniak and Woźniak conjectured that for any graph G , $\chi_\Sigma^t(G) \leq \Delta(G) + 3$. In this paper, we present $\chi_\Sigma^t(G) \leq \max\{\Delta(G) + \lfloor \frac{3\text{col}(G)}{2} \rfloor - 1, 3\text{col}(G) - 2\}$, where $\text{col}(G)$ is the coloring number of G . In particular, for a 2-degenerate graph G , we determine the exact values of $\chi_\Sigma^t(G)$ if $\Delta(G) \geq 6$ and show that $\chi_\Sigma^t(G) \leq 7$ if $4 \leq \Delta(G) \leq 5$. (Received August 23, 2016)