1086-05-220 **Andrea Monterotti*** (amonterotti@students.stonehill.edu), Department of Mathematics, Stonehill College, Easton, MA 02357, and **Hsin-hao Su** (hsu@stonehill.edu), Department of Mathematics, Stonehill College, Easton, MA 02357. *The Edge-balance Index Set of Halin Graph of Double Stars.*

Let G be a simple graph with vertex set $V(G)$ and edge set $E(G)$. Any edge labeling f induces a partial vertex labeling $f^+ : V(G) \to \{0,1\}$ depending on whether there are more 0-edges or 1-edges incident with v, and no label is given to $f^+(v)$ otherwise. For each $i \in \{0,1\}$, let $v_f(i) = |\{v \in V(G) : f^+(v) = i\}|$ and let $e_f(i) = |\{e \in E(G) : f(e) = i\}|$. An edge-labeling f of G is said to be edge-friendly if $\{|e_f(0) - e_f(1)| \leq 1$. The edge-balance index set of G is defined as $\{|v_f(0) - v_f(1)| :$ the edge labeling f is edge-friendly.$\}$.

Because of the definition of the edge-balance index, the calculation of the edge-balance index set depends highly on the structure of a graph. The general approach usually results an arithmetic progression. But, Chopra, Lee and Su discovered in 2010 that the values in an edge-balance index set of a wheel graph do not form an arithmetic progression.

A Halin Graph of a Double Star is a graph very similar to a wheel graph except there are two centers inside the outer cycle. We determined the exact values of the edge-balance index sets of Halin graphs of double stars, which do not form an arithmetic progression. (Received August 07, 2012)