

## COMPARISON BETWEEN THE LAPLACIAN-ENERGY-LIKE INVARIANT AND THE KIRCHHOFF INDEX\*

S. PIRZADA<sup>†</sup>, HILAL A. GANIE<sup>†</sup>, AND IVAN GUTMAN<sup>‡</sup>

**Abstract.** For a simple connected graph  $G$  of order  $n$ , having Laplacian eigenvalues  $\mu_1, \mu_2, \dots, \mu_{n-1}, \mu_n = 0$ , the Laplacian-energy-like invariant ( $LEL$ ) and the Kirchhoff index ( $Kf$ ) are defined as  $LEL(G) = \sum_{i=1}^{n-1} \sqrt{\mu_i}$  and  $Kf(G) = n \sum_{i=1}^{n-1} \frac{1}{\mu_i}$ , respectively. In this paper,  $LEL$  and  $Kf$  are compared, and sufficient conditions for the inequality  $Kf(G) < LEL(G)$  are established.

**Key words.** Laplacian spectrum, Laplacian-energy-like invariant, Kirchhoff index.

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<sup>†</sup>Department of Mathematics, University of Kashmir, Srinagar, India  
(pirzadasd@kashmiruniversity.ac.in, hilahmad1119kt@gmail.com).

<sup>‡</sup>Faculty of Science, University of Kragujevac, Kragujevac, Serbia, and State University of Novi Pazar, Novi Pazar, Serbia (gutman@kg.ac.rs).