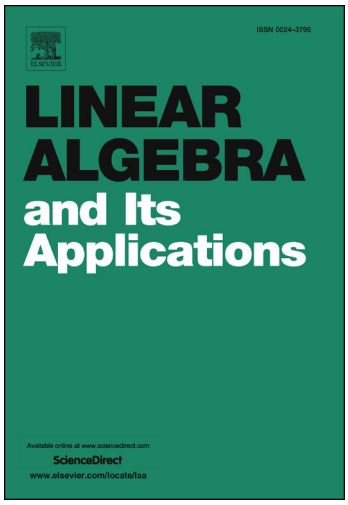

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ENERGY OF A VERTEX

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AND OLIVER JUAREZ-ROMERO

Abstract. In this paper we develop the concept of energy of a vertex introduced in Arizmendi and Juarez-Romero (2018). We derive basic inequalities, continuity properties, give examples and extend the definition to locally finite graphs.

Contents

1. Introduction and Statements of Results

The *graph energy* is a graph invariant that was defined by I. Gutman [12] in his studies of mathematical chemistry. Specifically, this concept emerged from the application of Hückel Molecular Orbital (HMO) theory to the study of conjugated hydrocarbons in theoretical chemistry. An excellent introduction to the theory of graph energy can be found in the monograph [20], see also [13]. Formally, the energy of a graph G, denoted by $\mathcal{E}(G)$, is defined

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