

Unicyclic signed graphs with minimal energy

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A connected signed graph with n vertices is said to be unicyclic if its number of edges is n . The energy of a signed graph S of order n with eigenvalues x_1, x_2, \dots, x_n is defined as $E(S) = \sum_{j=1}^n |x_j|$. In this paper, we obtain integral representations for the energy of a signed graph. It is shown that even and odd coefficients of the characteristic polynomial of a unicyclic signed graph respectively alternate in sign. As an application of integral representation, energy of signed graphs obtained from a unicyclic graph is compared. As a consequence of these results, we characterize unicyclic signed graphs with minimal energy.

References

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