

5.3 Connection Between Distance and Laplacian Matrices

Finally, there exists a connection between the distance and Laplacian matrices of a tree:

Theorem 5.2. *Let T be a tree of order n with Laplacian matrix L and distance matrix D . Then*

$$LDL = -2L$$

Once again, there exists a pattern for trees which does not occur for other graphs, and it emerges for all trees of a given order, regardless of their structure or shape. It suggests an underlying similarity of great interest.

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