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Title:	Standard monomials of 1-skeleton ideals of graphs and generalized signless Laplacians
Authors:	Kumar, Chanchal (/jspui/browse?type=author&value=Kumar%2C+Chanchal) Lather, Gargi (/jspui/browse?type=author&value=Lather%2C+Gargi) Roy, Amit (/jspui/browse?type=author&value=Roy%2C+Amit)
Keywords:	Standard monomials Signless Laplacian
Issue Date:	2022
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Citation:	Linear Algebra and Its Applications, 637(1), 24-48.
Abstract:	For a graph $G$ on the vertex set $\{0, 1, \dots, n\}$ , the $G$ -parking function ideal $MG$ is a monomial ideal in the polynomial ring $R = K[x_1, \dots, x_n]$ such that the vector space dimension of $R/MG$ is given by the determinant of its reduced Laplacian. For any integer $k$ , the $k$ -skeleton ideal $M(k)G$ is the subideal of $MG$ , where the monomial generators correspond to nonempty subsets of $[n]$ of size at most $k + 1$ . For a simple graph $G$ , Dochtermann conjectured that the vector space dimension of $R/M(1)G$ is bounded below by the determinant of the reduced signless Laplacian. We show that the Dochtermann conjecture holds for any (multi) graph $G$ . More generally, we prove that this bound holds for ideals $JH$ defined by a larger class of symmetric positive semidefinite $n \times n$ matrices $H$ .
Description:	Only IISER Mohali authors are available in the record.
URI:	<a href="https://doi.org/10.1016/j.laa.2021.12.003">https://doi.org/10.1016/j.laa.2021.12.003</a> ( <a href="https://doi.org/10.1016/j.laa.2021.12.003">https://doi.org/10.1016/j.laa.2021.12.003</a> ) <a href="http://hdl.handle.net/123456789/5118">http://hdl.handle.net/123456789/5118</a> ( <a href="http://hdl.handle.net/123456789/5118">http://hdl.handle.net/123456789/5118</a> )
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