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Dear Editor,

I am submitting the following manuscript for publication in Electronic Journal of Combinatorics.

Title: Logarithmic tree-numbers for acyclic complexes

Authors: H. Kim and W. Kook (corresponding)

In this manuscript, we prove an intriguing polynomial equation relating determinants of the total combinatorial Laplacians and high-dimensional tree-numbers for acyclic complexes. We also discuss a refinement of this equation and various applications demonstrating the advantage of using total combinatorial Laplacians for acyclic complexes rather than “partial” Laplacians.

We adopt the notion of tree-numbers for cell complexes following Adin’s work on colorful simplicial complexes (refer to [1] in the references). In order for this adoption to be well-defined for any finite cell complex, we incorporated a few minor (but important) revisions to previous definitions by other authors. For example, we explicitly require that all boundary operators of the chain complex of a given cell complex be non-zero.

Thank you very much for your time and consideration. We look forward to hearing from you soon.

Sincerely yours,

Woong Kook