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Enumerating simplicial spanning trees of shifted and color-shifted complexes, using simplicial effective resistance. Preliminary report.

Simplicial electrical networks generalize electrical networks from graphs to higher dimensional simplicial complexes, where resistances, currents, and voltages on the facets of the complex satisfy a generalized Ohm's law. Simplicial effective resistance, developed by Kook and Lee, generalizes to this setting the notion of effective resistance, which is the resistance of a new facet required to replace a network of resistors. We use simplicial effective resistance to enumerate the simplicial spanning trees of shifted complexes, reproving a known result, and of color-shifted complexes, proving a previously conjectured result. (Received August 09, 2021)