Standard Laplacian on Metric Cayley Graphs

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A metric graph analogue of Cayley graphs is introduced. It turns out that the standard Laplacian on metric Cayley graphs is unitarily equivalent to a direct sum over the irreducible representations of the Laplacian defined on flower graphs with pendant edges and flux-type vertex conditions depending on the action of the irreducible representation on the generators. The number of petals and leaves will depend on the generators and their order. If time allows it, we will then discuss additional results concerning flower graphs with fluxes. It is shown that for such graphs, the spectral gap is increasing as the flux varies from 0 to π. It is also shown that the corresponding secular polynomials are generally irreducible. This is based on joint work with Pavel Kurasov.