

The inverse eigenvalue problem of a graph from a frame theoretic viewpoint

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In a finite-dimensional Hilbert space, a finite frame is a typically redundant (over-complete) sequence of vectors whose span is the whole space. The redundancy of frames makes them advantageous over orthonormal bases in various applications, for example, by making them robust to losses or erasures in data transmission. In this talk, we apply some tools from frame theory to the inverse eigenvalue problem of a graph. We classify certain line graphs as dual multiplicity graphs or, in the frame theory terminology, tight frame graphs.