

The Spectral Radius Of Some Operators Arising In Wavelet Analysis

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Subdivision and refinement operators are used to construct and study wavelet bases. The spectral radii of such operators play an important role in the evaluation of the regularity of associated refinable functions. In this work, we establish the estimates of the spectral radius for multivariate refinement and subdivision operators generated by continuous matrix functions and the dilations which belong to a special class of matrices. This class contains many dilations used in wavelet analysis. There are two types of estimates established - viz. estimates using symbol values on certain subsets of \mathbb{T}^s and others that contain integrals of different dimensions over designated subsets of \mathbb{T}^s . To obtain the integral estimates, we construct a family of measures invariant with respect to the dilation considered and use certain properties of weighted shift operators.