Estimates of the spectral radius of refinement and subdivision operators with isotropic dilations

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Abstract. The paper presents lower bounds for the spectral radii of refinement and subdivision operators with continuous matrix symbols and with dilations from a class of isotropic matrices. This class contains main dilation matrices used in wavelet analysis. After obtaining general formulas, two kinds of estimate for the spectral radii are established: viz. – estimates using point values of the symbols and others involving integrals of different dimensions over designated subsets of the unit cube. For some symbol classes the exact value of the spectral radius of the refinement operator is found.

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