

Second order dynamic operator with transmission conditions and associated contractive operator

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In this paper, we investigate the spectral properties of a boundary value transmission problem generated by a dynamic equation on the union of two time scales. For such an analysis we assign a suitable dynamic operator which is in limit-circle case at infinity. We also show that this operator is a simple maximal dissipative operator. Constructing the inverse operator we obtain some information about the spectrum of the dissipative operator. Moreover, using the Cayley transform of the dissipative operator we pass to the contractive operator which is of the class C_0 . With the aid of the minimal function we obtain more information on the dissipative operator. Finally, we investigate other properties of the contraction such that multiplicity of the contraction, unitary colligation with basic operator and CMV matrix representation associated with the contraction.