An Active Control of a Double-Beam Complex System

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This paper deals with an active optimal control of free transverse vibrations of an elastically bonded continuous beam-string system. The aim of the paper is to minimize the physical energy through displacement and the velocity of the system. For this purpose, the actuators are placed in the domain of the system. A performance index functional which comprises of modified energy functional of the system and the expenditure of the actuators is also introduced. To minimize the performance index functional calculus of variation is used and the necessary conditions for the optimality are derived in the form of Fredholm integral equations. A numerical example is illustrated to show the applicability of the proposed technique. [1] [2] [3] [4] [5].

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