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# Optimization of Shear Frame Structures Applying Various Forms of Wavelet Transforms

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**Abstract :** <p class="Abstract" style="text-indent:10.2pt">In the present research, various formulations of wavelet transform are applied on acceleration time history of earthquake. The mentioned transforms decompose the strong ground motion into low and high frequency parts. Since the high frequency portion of strong ground motion has a minor effect on dynamic response of structures, the structure is excited by low frequency part. Consequently, the seismic response of structure is predicted consuming one half of computational time, comparing with conventional time history analysis. Towards reducing the computational effort needed in seismic optimization of structure, seismic optimization of a shear frame structure is conducted by applying various forms of mentioned transformation through genetic algorithm.<o:p></o:p>

**Keywords :** time history analysis, wavelet transform, optimization, earthquake
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