Fourier Analysis and Response in the Frequency Domain

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ABSTRACT

In this paper presents the application of Fourier series to determine: (1) the response of a system to periodic forces, and (2) the response of a system to nonperiodic forces in the frequency domain as an alternate approach to the usual analysis in the time domain. In either case, the calculations require the evaluation of integrals that, except for some relatively simple loading functions, employ numerical methods for their computation. Thus, in general, to make practicai use of the Fourier method, it is necessary to replace the integrations with finite sums.

Keywords: FOURIER ANALYSIS, RESPONSE TO A LOADING REPRESENTED BY FOURIER SERIES, DISCRETE FOURIER ANALYSIS

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