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# COMMENTS ON "FREE VIBRATION ANALYSIS OF ARBITRARILY SHAPED PLATES WITH CLAMPED EDGES USING WAVE-TYPE FUNCTIONS"

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The purpose of the present discussion is twofold: first to congratulate the authors for their interesting paper and extension of the non-dimensional dynamic influence function in order to deal with vibrating arbitrarily shaped plates with clamped edges [1] and, in the second place, to present additional methods and references dealing with the subject matter and which have been inadvertently omitted by the authors.

Since the authors make reference to technical literature dealing with plates with reentrant corners, it may be useful to point out that a severe stress concentration field may develop in some situations and additional considerations come into play when determining natural frequencies.

The subject has been thoroughly studied by A. W. Leissa and one of his students using a special stress function [2, 3].

On the other hand, vibrations of clamped and simply supported plates of complicated boundary shape have been studied by a combination of a conformal mapping–variational method approach for almost half a century since Munakata's paper was published [4–10].

Admittedly, most of these papers dealt with the determination of the fundamental frequency of vibration but, on the other hand, dealt with several complicating factors: in-plane forces, presence of concentrated masses, non-uniform thickness, etc. A disadvantage of the method is the fact that the mapping function must be known in advance.

The methodology was also extended to the determination of critical, buckling, in-plane hydrostatic pressure [11–13].

In general, these studies were motivated by the necessity of obtaining knowledge regarding the behavior of printed circuit boards of electronic equipment operating in severe dynamic environments [14, 15].

Experimental studies were also performed [8] and very recently, the possibility of using a dynamic absorber in the case of a vibrating clamped hexagonal plate under resonance condition was investigated [16].

It may be of interest to recall that some of the first results published on vibrating regular polygonal plates are available in Collatz's classical treatise [17]. The eigenvalues were determined using the finite difference method.

Extremely important methods for dealing with vibrating plates are the finite strip technique developed by Y. K. Cheung and the superposition method due to D. J. Gorman.

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