

## عنوان مقاله:

Comparison between the frequencies of FML and composite cylindrical shells using beam modal function model

## محل انتشار:

مجله مکانیک کاربردی محاسباتی، دوره 50، شماره 2 (سال: 1398)

تعداد صفحات اصل مقاله: 7

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## خلاصه مقاله:

A comparison between the vibration of fiber-metal laminate (FML) and composite cylindrical shells has been studied in this manuscript. Love's first approximation shell theory has been applied to obtain Strain-displacement relations. In addition, beam modal function model has been used to analyze the cylindrical shell with different boundary conditions. In this manuscript, the frequencies of FML and composite cylindrical shells have been compared to each other for different materials, lay-ups, boundary conditions, axial and circumferential wave numbers. The most commercially available FMLs are CARALL (carbon reinforced aluminium laminate), and GLARE (glass reinforced aluminium laminate), which are studied in this research. The results showed although the frequencies of carbon/epoxy are greater than glass/epoxy for all of the  $n$ , this process is not constant for FML. Also, with increasing the  $n$ , the frequencies of FML cylindrical shells are converged more faster than the composite one. Moreover, the frequencies of both boundary conditions are converged with increasing  $n$  for both FML and composite cylindrical shells.

## کلمات کلیدی:

Free Vibration, FML, Circular Cylindrical Shell, Beam Modal Function, Different Lay-ups

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