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Authors' reply to the comment on “Vibration of turbomachinery rotating blades made up of functionally graded materials and operating in a high temperature field”

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As it can be seen from Tables 1a and 1b, the trends of frequency variation with pretwist angle are quite different depending on the odd or even mode number of frequencies. Rotation speed also changes the trend of frequency variation. These results are compared with the case in [11], and an excellent agreement is noticed.

It means that numerical or computational errors may not be intervened in the paper. Equations (1.1) and (1.2) reveal that a presetting angle acts like an additional constant pretwist angle, and as a result, it affects the frequencies in a similar way as the pretwist angle does.

The results shown in Figs. 3–5 are obtained for the case of zero pretwist angle. Then, the values of x and y will vary harmonically with presetting angle alone and it will change the stiffness and inertia quantities harmonically (see Appendix). In-plane and out-of-plane mode vibrations can be switched to each other as the presetting angle changes. This fact may constitute the reason of the observation “depending on the odd or even mode number, the increase of the presetting angle yields either a decrease or increase in the natural frequencies” in the paper.

L. Librescu was deceased.

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