

¹⁰Mains, R. M., "Results of Comparative Studies on Reduction of Size Problem," *Shock and Vibration Bulletin* No. 42, Pt. 5, Jan. 1972, pp. 135-141.

¹¹Berman, A., "Vibration Analysis of Structural Systems Using Virtual Substructures," *Shock and Vibration Bulletin* No. 43, Pt. 2, June 1973, pp. 13-22.

Reply by Authors to A. Berman

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WE wish to thank A. Berman for his interesting comments, for his interest in our work, and, in particular, for his favorable evaluation of that work.

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The reason for our choice of the mass matrix as the exact quantity stems from our desire to compare our results with results which were obtained in the literature. Berman's remark concerning the exactness of the stiffness matrix is very interesting and deserves further research using the optimal approach presented in our work. In any case, the approach that prefers the mass matrix should not be abandoned, because it is reasonable to assume that some methods may be found in the future for a better and independent determination of the mass matrix.

Berman's second suggestion, concerning the weight given in the optimization to the errors between the corrected and measured modes, assigns higher credibility to the smaller amplitudes. In our opinion this suggestion has yet to be justified by practical measurements. Moreover, in cases where the measured amplitudes are close to zero, Berman's suggestion will cause numerical difficulties.

Finally, Berman raises a philosophical question as to whether corrected data are better than the data themselves. Obviously the measurement is contaminated by various errors, hence the data themselves are incorrect. In such cases any additional information is useful and this is precisely what was done in our work, where information concerning the mass and the stiffness matrices was used in some optimal way.

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