In Computational Mechanics one comes across with models based on finite element formulations, which often need to be repeatedly solved, e.g. in the scope of frequency response analyses in structural dynamics and vibroacoustics. Usually, such problems represent both a data storage and time expensive task, when the whole system is considered and classical solvers are used. In the last decades several Model Order Reduction (MOR) techniques have been developed for decreasing the computational cost and the memory store of data, though maintaining the main features of the original model. This work presents moment-matching MOR techniques, namely Padé approximation, Krylov-based Galerkin Projection method and Derivative-based Galerkin Projection. A numerical example of a vibroacoustical problem is presented. The results show the suitability of the moment-matching methods for non symmetrical and non proportional damped systems and highlights the time efficiency and the suitability for parallel implementation of those methods.

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