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VIBRATION ANALYSIS OF MOVING LOAD PROBLEMS WITH PARTICULAR EMPHASIS ON ANALYTICAL AND SEMI-ANALYTICAL SOLUTIONS

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ABSTRACT

With the evolution of the computational power, there is a tendency to overlook analytical and semi-analytical solutions, despite their inherent advantages. One should, however, be aware of the fact, that these solutions provide the necessary insight into the relevant physical phenomena and are accompanied by quickly obtainable highly precise results. With the help of dimensionless parameters one can understand general tendencies for a specific group of possible combinations of real parameters, and, as the physical model usually requires substantial simplifications, this also means that the results obtained are reduced to essential information that can be simply analysed.

This Mini-symposium aims at bringing together academic scientists and industry researchers dedicating their investigations to solutions related to analyses of dynamic systems, with special emphasis on transportation structures and moving loads. It covers a broad research area from simple models to complicated applications, focused on analytical modelling, accompanied by numerical simulation and optimization. Interdisciplinary ideas regarding physical problems appearing in constructions subjected to dynamic excitations (mainly due to moving loads) are welcome in this session.

However, the proposed Mini-symposium is not limited to analytical approaches. All new solutions or problems formulations within the area of moving loads, including those using numerical or hybrid methods, are also well seen.

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