

ABSTRACT

The organizational separation of railway infrastructure and transportation companies in Europe leads to the demand on bogies with relative small dynamic load i.e. smaller damaging effect on track, in addition this should be provided with always higher static axle load in case of freight wagons. In order to fulfil the increased requirements several new track superstructures has been developed beyond common sleeper tracks, e.g. the frame sleeper track and the slab track, which employ complex non-linear elastomer elements, as well. On the other hand the standard multi-body-system (MBS) softwares used in the railway vehicle industry either does not account for the dynamic behaviour of track at all, or they apply only very simplified models, whereas from the Winkler foundation and from the early works by Timoshenko until recently several research works have been carried out on this task. The track models can be classified in lot of ways: finite and infinite, continuous and discretised, linear and non-linear, moved and fixed in space models, etc. The aim of this paper is the analysis of typical track models from point of view of their dynamical properties, limitations, fields of application and not least their applicability in MBS softwares.