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**The influence of tyre design on tyre/road noise - some  
fundamental thoughts**

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Tyre/road noise generation mechanisms are divided into two categories, tyre vibrations (due to time varying contact forces) and airflow related processes (e.g. air-pumping) in the contact between tyre and road. The paper only focuses on tyre vibrations. An existing model for the simulation of tyre/road interaction is used to investigate the influence of tyre design on the vibrational energy stored in the tyre structure during rolling. It can be shown that ,although design is changed substantially, very little changes can be observed with respect to input power through the contact into the tyre structure. Changes in driving point mobilities of tyres are not directly related to changes in noise generation. Geometry changes leading to different contact geometry and in this way to different modal composition of the vibrational field as well as design changes leading to changes in wave speed are of higher importance. These changes have a strong influence on the radiation efficiency of tyres.