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# Tyre cavity design for better fuel economy

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Rolling resistance is one of the central areas of focus in the on-going tyre developments and research. This is because of the considerable impact it holds on vehicle's fuel economy and $CO_2$ emissions on a global scale. However, reducing rolling resistance is not an easy task to do due to the complexity of tyre construction and the trade-offs involved between tyre's main characteristics in the process. A prospective solution that may help in greatly minimising the trade-offs and improve fuel economy is the notion of mutliple compartments tyre. This presentation explores the potentiality of mutli-compartments tyre solution in lowering rolling resistance with minimum trade-offs possible. In this respect, several novel tyre designs were introduced and investigated via Abaqus/Explicit for rolling resistance, grip, ride comfort and cornering. The investigation revealed a clear difference in tyre peformance between the multi-compartment designs and the conventional tyre.

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