What happens in the tire contact patch?

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Abstract

“What happens in the tire contact patch” explains how a tire grips the ground. The actual area under load determines the contact pressure and governs proper grip or friction which is a key for safety. Among all specimen geometries for rubber frictional measurements, a wheel shape sample is of great interest. In the first step, the static contact areas and pressures of Grosch wheels on various surface roughness were measured and compared to those of the corresponding real tires. The effect of the in-rubber properties on the contact area was investigated to enhance the insight into the tire contact patch.

Keywords: Tire contact area, Tire pressure distribution, Rubber friction, Solid rubber wheel, Grosch wheel