

Title (en)

SYSTEMS FOR DETECTING PHYSICAL PROPERTY CHANGES IN AN ELASTOMERIC MATERIAL

Title (de)

SYSTEME ZUR ERKENNUNG VON VERÄNDERUNGEN PHYSIKALISCHER EIGENSCHAFTEN IN EINEM ELASTOMEREN MATERIAL

Title (fr)

SYSTÈMES POUR DÉTECTER DES CHANGEMENTS DE PROPRIÉTÉS PHYSIQUES DANS UN MATÉRIAU ÉLASTOMÈRE

Publication

EP 4232304 A1 20230830 (EN)

Application

EP 21883476 A 20210722

Priority

- US 202063094223 P 20201020
- US 202117340493 A 20210607
- US 202117340514 A 20210607
- US 202117340678 A 20210607
- US 2021042735 W 20210722

Abstract (en)

[origin: WO2022086611A1] Systems for detection of tire strain in a vehicle are disclosed. In some implementations, the system may include an antennae disposed on one or more of the vehicle or a vehicle component and may output an electromagnetic ping. The system may include a tire with a body formed of one or more tire plies. Any one or more of the tire plies may include split-ring resonators (SRRs). Each SRR may have a natural resonance frequency that may proportionately shift in response to a change in an elastomeric property of a respective one or more tire plies, the elastomeric property including one or more of a reversible deformation, stress, or strain. The SRRs may include SRR with carbon particles that may uniquely resonate in response to an electromagnetic ping based at least in part on a concentration level of the carbon particles within the SRR.

IPC 8 full level

B60C 11/24 (2006.01); **G01B 7/06** (2006.01); **G06K 19/02** (2006.01); **G06K 19/077** (2006.01)

CPC (source: EP)

B60C 11/243 (2013.01); **B60C 19/00** (2013.01); **B60C 23/0452** (2013.01); **G01B 7/16** (2013.01); **G06K 19/0672** (2013.01); **G06K 19/07764** (2013.01); **B60C 5/14** (2013.01); **B60C 9/18** (2013.01); **B60C 2019/004** (2013.01)

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

Designated validation state (EPC)

KH MA MD TN

DOCDB simple family (publication)

WO 2022086611 A1 20220428; CN 116324329 A 20230623; EP 4232304 A1 20230830; EP 4232304 A4 20241002; TW 202223332 A 20220616

DOCDB simple family (application)

US 2021042735 W 20210722; CN 202180069064 A 20210722; EP 21883476 A 20210722; TW 110127938 A 20210729