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Finite element analysis of electric bike rims coupled with hub motor

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In this study, static and fatigue analysis of three different electrical bikes' rims which are coupled with electrical hub motor are investigated. Loading conditions were applied on rim in order to simulate driving forces that exert on road conditions. Analysis results of three rims were compared with each other. According to results, sharp edges increase von-Mises stresses and decrease fatigue safety factor due to the stress concentration on the corners. Also, it was observed that contact area of spokes to flange affects the total deformation and von-Mises stress distribution. Three dimensional models of the rims were designed with the aid of CATIA V5 and their computational analyses were carried out with ANSYS WORKBENCH software program.

Biography

Erinç Uludamar is a PhD student and has been working as a Research Assistant at the Mechanical Engineering Department of Çukurova University since 2010.

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