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## **Numerical Study of Surface Discontinuity Characteristics in the Performance of Flexible Cracked Pavement Due to Dynamic Load**

*The presence of cracks on asphalt is one of the most significant and common causes of failure in asphalt pavements; Therefore, modeling and studying the factors affecting it, as well as examining the effect of sealing on asphalt improvement can be as effective as possible in managing financial resources and efficiency of asphalt pavement. The purpose of this study was to numerically investigate the characteristics of surface discontinuity in the performance of cracked asphalt pavement due to dynamic load. In this research, first asphalt samples with repaired discontinuity and samples with unrepaired discontinuity were modeled in ABAQUS software and then dynamic creep and fatigue tests were simulated in this software. Then, to validate the simulation, laboratory asphalt samples were made and tested for dynamic creep and fatigue, and the results were compared with the software simulation results. The results of this study show that the simulation of dynamic creep tests has given greater results than the experiments in reality, and the simulation results of simulated unrepaired samples are more different from the test results than the repaired samples, due to the complexity of the geometry. Examples. Also, in the simulation results of the fatigue test, it is observed. The advantage of modeling is that it is possible to study the number of different scenarios of factors affecting the pavement performance without making laboratory samples and conducting experiments; Because, with the help of fashion, approximate results can be achieved. In addition, the results show that crack sealing reduces the resistance of asphalt concrete to grooving and reduces fatigue performance.*

**Keywords:** Dynamic loading, Flexible pavement, Cracked pavement, Numerical modeling, Surface discontinuity.

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