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**ABSTRACT:**

**The leaf spring is widely used in automobiles and one of the important components of suspension system. It needs to withstand all types of stresses occurred in it up to maximum limit. This work is carried out on a multi leaf spring having 11 leaves used by a commercial vehicle. The finite element modeling and analysis of a multi leaf spring has been carried out. It includes two full length leaves in which one is with eyed ends and 9 graduated length leaves. The material of the leaf spring is 55Si2Mn90. In this work, Design of experiments has been applied under various configurations of the spting (i.e. by varying camber & eye distance).**

**The FE model of the leaf spring has been generated in PTC CREO and imported in ANSYS-11 for finite element analysis, which are most popular CAE tools. The FE analysis of the leaf spring has been performed by descritisation of the model in infinite nodes and elements and refining them under defined boundary condition. Bending stress and deflection are the target results. A comparison of both i.e. experimental and FEA results have been done to conclude.**

***KEYWORDS:* Semi-elliptical leaf spring, static loading, camber, Computer aided engineering (CAE), Finite element analysis (FEA).**