

Energy is dissipated in mechanical systems in several forms. The major contributor to damping in bolted lap joints is friction, and the level of damping is a function of stress distribution in the bearing surfaces. This study examines the effects of bearing surface configuration on lap joint energy dissipation. The examination is carried out through the analysis of experimental results in a nonlinear framework. Then finite element models are constructed in a nonlinear framework to simulate the results. The experimental data were analyzed using piecewise linear log decrement. Phenomenological and non-phenomenological mathematical models were used to simulate joint behavior.