

Phase Space Interrogation of Bridge under Vehicular Loading

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Abstract: *The structural integrity and safety of bridges are paramount concerns in civil engineering and transportation infrastructure. As critical components of modern transportation networks, bridges are subjected to various dynamic loads, with vehicular traffic being one of the most significant and persistent sources of stress. The continuous passage of vehicles across bridges induces complex vibrations and deformations, which can accumulate over time and potentially compromise the structure's longevity and safety. In light of these challenges, the need for advanced analytical methods to assess and predict bridge behavior under vehicular loading has become increasingly urgent*

Keywords: Structural Integrity, Safety of Bridges, Paramount Concerns, Transportation Infrastructure, Induces Complex Vibrations, Deformations