

Analysis of the Bridge's Phase Space Interrogation Results under Vehicle Loading

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Abstract: *The concept of phase space is fundamental to understanding the dynamics of complex systems, including bridges under vehicular loading. In essence, phase space is a mathematical construct that represents all possible states of a system in a multidimensional space. Each dimension in this space corresponds to a different variable that describes the system's state. For a bridge structure, these variables might include displacement, velocity, acceleration, and various internal forces. The power of phase space analysis lies in its ability to capture the complete state of a system at any given moment. Unlike time-domain representations, which show how individual variables change over time, phase space provides a holistic view of the system's behavior. This comprehensive representation allows researchers to identify patterns and relationships that might not be apparent when examining individual variables in isolation.*

Keywords: Dynamics Complex Systems, Including Bridges, Vehicular Loading, Essence, Phase Space, Multidimensional Space