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[ADVANCED](#)[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

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STRUCTURAL ENGINEERING / EARTHQUAKE ENGINEERING

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[\[Image PDF \(905K\)\]](#) [\[References\]](#)**INELASTIC SEISMIC RESPONSE OF BRIDGE PILES: EFFECTS OF SUPERSTRUCTURE PROPERTIES AND SOIL LAYERING**Jorge SHIMABUKU¹⁾ and Hirokazu TAKEMIYA¹⁾

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This paper has dealt with the nonlinear behavior of pile-supported bridge during earthquake motions. The formulation takes the FEM-BEM technique; the FEM for the near structure zone while the BEM for the far field zone. The analyses addressed to the parameter studies of component influence on the behavior of the total superstructure-pile-soil system for the total rational design practice. The results are interpreted with regards to: (1) inelastic behavior of superstructure or/and substructure; (2) different superstructure properties and vertical excitation conditions; and (3) soil layering effect on pile response with emphasis on kinematic and inertial interactions.

Key Words: soil-pile interaction, nonlinear behavior, layered soil, vertical excitation, inertial and kinematic interaction, maximum displacement profile, internal forces in piles profile

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