

## Stress Analysis in Long Span Bridge Restoration

*H.E. Lee, J.S. Lin, G.L. Chang, T.Y.F. Chen*

Key Words: Stress Analysis, Long Span Bridge, Photoelastic.

### Abstract

Bridge or crown restoration is frequently used in dental clinics of teeth missing over molar area. In this study, the relationship between teeth and alveolar bone was simulated by the model of modified quasi-three-dimensional photoelasticity. The observation of stress distribution in abutment periodontium supporting a long span bridge was taken in the circular polarized light.

The results obtained from analyzing the stress concentration data were described as following: (1) All cases in this experiment, stress concentration of abutments increased when increasing the alveolar bone resorption of the second molar.

And the long span bridge without extending abutment to canine had more prominent increasing tendency, (2) The effects of the first premolar alveolar bone resorption were not prominent as the second molar. The degree of the second molar stress concentration did not increase when increasing alveolar bone resorption of the first premolar.