SAFETY EVALUATION OF LONG-RANGE MONITORING OF BRIDGE HEALTH BASED ON INTERNAL FORCE ENVELOPE THEORY

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ABSTRACT—The safety evaluation model, the resistant internal force diagram and real-time internal force diagram based on the real-time monitoring of a bridge as well as the application are expounded. The internal force envelope method in bridge design is applied to the remote monitoring of bridge health, and a kind of safety evaluation method based on internal force envelope theory is proposed. Comparing with the current method, this method solves the problems that the measuring points are limited and can’t reflect the state of unmeasured location and the overall bridge. Therefore, this method is advantageous to be more intuitive and more objective, at the same time, it does better in overcoming environmental and operational conditions and has a promising application potential.