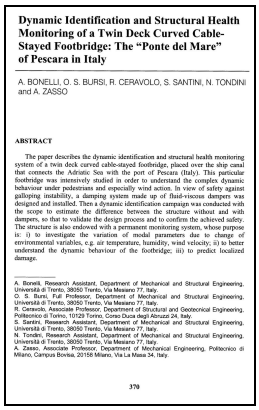

Dynamic Identification and Structural Health Monitoring of a Twin Deck Curved Cable-Stayed Footbridge: The “Ponte del Mare” of Pescara in Italy

A. BONELLI, O. S. BURSI, R. CERAVOLO, S. SANTINI, N. TONDINI and A. ZASSO

ABSTRACT

The paper describes the dynamic identification and structural health monitoring system of a twin deck curved cable-stayed footbridge, placed over the ship canal that connects the Adriatic Sea with the port of Pescara (Italy). This particular footbridge was intensively studied in order to understand the complex dynamic behaviour under pedestrians and especially wind action. In view of safety against galloping instability, a damping system made up of fluid-viscous dampers was designed and installed. Then a dynamic identification campaign was conducted with the scope to estimate the difference between the structure without and with dampers, so that to validate the design process and to confirm the achieved safety. The structure is also endowed with a permanent monitoring system, whose purpose is: i) to investigate the variation of modal parameters due to change of environmental variables, e.g. air temperature, humidity, wind velocity; ii) to better understand the dynamic behaviour of the footbridge; iii) to predict localized damage.

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**Ключевые слова:**

**Содержание.**