

Compared with electrical strain gauges, fiber Bragg grating (FBG) ...

To achieve long-term real-time monitoring and a more accurate assessment of the tunnel structure's stability, the paper introduces fiber Bragg grating (FBG) strain sensor monitoring technology.

Based on the geophysical exploration results, a carbon-fiber-strengthened tunnel simulation model was established to analyze the mechanical characteristics of the structure and ...

In this article, we combine Fiber Bragg Grating temperature measurement with an infrared flame detector to monitor tunnel fire.

Compared with electrical strain gauges, fiber Bragg grating (FBG) sensing technology is a relatively novel method for tunnel structural health monitoring, which has a number of advantages ...

Today, modern monitoring systems allow reliable condition monitoring of tunnels using fiber Bragg technology. Mechanical deformations in a tunnel can present a significant safety hazard, particularly ...

This review highlights significant advancements in Fiber Bragg Grating (FBG) sensors, detailing their operational principles, recent technological developments, and diverse applications in SHM, thereby ...

By integrating FBG sensors into tunnel monitoring systems, this study aims to enhance the understanding of the dynamic behavior of surrounding rock and improve safety protocols.

This paper developed an inclinometer based on the fiber Bragg grating sensing technology to monitor the displacement and deformation induced by tunnel excavation. Besides, a laboratory model test ...

We report on application tests of novel sensor elements for long term surveillance of tunnels. The sensors are made of glass fiber reinforced polymers (GFRP) with embedded optical fiber...

In this paper, fiber Bragg grating (FBG) sensing technology is introduced into tunnel construction. To monitor the deformation in the surrounding soil, an FBG inclinometer based on the ...

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