

Research on Non-linear fusion deformation analysis and forecast method

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KEY WORDS: Interdisciplinary Approaches for the Design and Analysis of Deformation Measurements

ABSTRACT:

When deformation observation time sequence contains both trend components and periodic components, a polynomial is used to fit the trend components, and next whether the rest of the residual contain periodic components is analyzed. The fitting polynomial may be influenced by subjective effect, so wavelet transform is introduced in this article; the deformation sequence is decomposed into trend smooth components and detail components, then the Fourier transform is used to analyze whether the detail parts contain periodic components. The effect of an application example is good. For periodic parts, a prediction model, which is based on wavelet analysis neural network of expanding Kalman filtering, is established for the stationary or non-stationary random components and abnormal parts of the deformation sequence. The application example has gained good results.