

## 11. Study on the Inverse Analysis Method of Ground Physical Property

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The prior examination of the deformation and destruction of ground is often carried out using the numerical analysis such as finite element method. The ground physical property is directly or indirectly decided from the geological survey result. However, appropriately not always expresses actual phenomenon. And, though the application of analytical methods by which feed back observation data would have mainly been adopted, it is not effectively utilized for the next stage.

The extended Kalman filter theory is introduced into the finite element method, which is numerical analysis with the high generality, and inverse analysis was carried out in several examples.

The applicability of both robust estimation and neural network technique is examined as a technique, which removed the extraordinary observation data.

**Key words** : inverse analysis, extended Kalman filter, robust estimation, neural network.