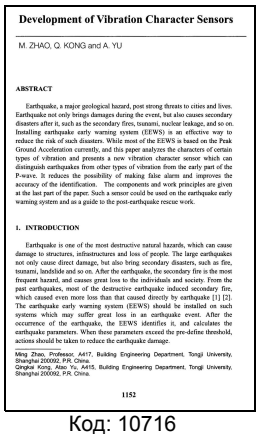
Development of Vibration Character Sensors

M. ZHAO, Q. KONG and A. YU

ABSTRACT

Earthquake, a major geological hazard, post strong threats to cities and lives. Earthquake not only brings damages during the event, but also causes secondary disasters after it, such as the secondary fires, tsunami, nuclear leakage, and so on. Installing earthquake early warning system (EEWS) is an effective way to reduce the risk of such disasters. While most of the EEWS is based on the Peak Ground Acceleration currently, and this paper analyzes the characters of certain types of vibration and presents a new vibration character sensor which can distinguish earthquakes from other types of vibration from the early part of the P-wave. It reduces the possibility of making false alarm and improves the accuracy of the identification. The components and work principles are given at the last part of the paper. Such a sensor could be used on the earthquake early warning system and as a guide to the post-earthquake rescue work.

1. INTRODUCTION

Earthquake is one of the most destructive natural hazards, which can cause damage to structures, infrastructures and loss of people. The large earthquakes not only cause direct damage, but also bring secondary disasters, such as fire, tsunami, landslide and so on. After the earthquake, the secondary fire is the most frequent hazard, and causes great loss to the individuals and society. From the past earthquakes, most of the destructive earthquake induced secondary fire, which caused even more loss than that caused directly by earthquake [1] [2]. The earthquake early warning system (EEWS) should be installed on such systems which may suffer great loss in an earthquake event. After the occurrence of the earthquake, the EEWS identifies it, and calculates the earthquake parameters. When those parameters exceed the pre-define threshold, actions should be taken to reduce the earthquake damage.

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Ключевые слова:

Содержание.