

Can a digital-controlled drilling platform extract mechanical parameters of rocks?

In this study, we proposed a numerical integrated method to extract the mechanical parameters of rocks based on a newly developed digital-controlled drilling platform. The refined rock drilling model was established based on the D-P criteria coupled with a damage model.

What parameters should be analysed for rock drilling tests?

For most investigations of rock drilling tests, two critical parameters of drilling responses should be analysed, including the thrust force and torque.

How to determine the input parameters of the rock drilling model?

The conventional rock mechanics tests (UCS test, BTS test and triaxial compression test) were conducted to obtain the input parameters of the rock drilling model, listed in Table 1. The establishment of the rock drilling model and the validation of the numerical simulations in terms of mechanical responses and failure modes

What are the characteristic parameters of rock drilling responses?

The average thrust force and torque were selected as characteristic parameters of rock drilling responses in this study for validation purposes. Then, the numerical simulation was performed for three types of rocks, and the results were compared with the experimental data.

Can a portable drilling machine drill rocks with different strength range?

The portable drilling machine is able to drill the rocks with different strength range coincident with measure and record the parameters. A set of drilling experiments were conducted on three different rocks ranged from weak, medium and hard strength.

What are the features of rock drilling for obtaining rock properties?

Rapid and partial acquisition are features of rock drilling for obtaining rock properties. Most previous research has primarily concentrated on how to quickly obtain rock mechanics parameters, with limited emphasis on extracting rock parameter fields, particularly in three dimensions.

Abstract This work presents a field application of an effective and reliable methodology for geomechanical parameters evaluation, using surface logging drilling data ...

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ABSTRACT Rock strength is an essential and effective property in the rock drilling, excavation, and cost evaluation. This work aims to examine a practical approach to evaluate ...



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Variations in drilling parameters related to bit performance as well as variations in mud logging data related to rock fragments, formation fluids ...

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The embankment, consisting of eight distinct zones of different soil types and materials, allowed measurements of MWD parameters under various drilling and soil ...

The interpretation of the log data shows a high resistivity, low GR, and low values of acoustic impedance, the gas-bearing interval is identified. To identify the rock attributes from the ...

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Oil and gas exploration and extraction are complex processes that require careful consideration of various drilling parameters. These parameters play a crucial role in ...

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Estimating rock strength parameters using operational drilling data can be a fast and reliable method. In this case, several researchers have proposed different analytical models ...

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In August, 1984, Analog magazine published my article "Advanced Machining in Ancient Egypt?" It was a study of "Pyramids and Temples of Gizeh," written by ...

The current research is being extended to other rock types, sedimentary, metamorphic and igneous rocks to see if they too fall into distinct zones. The aim of this study is to provide ...

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There are several quarries in Egypt, but the preferred granite source came from the Aswan area. One of the earliest known directors of the ...

We know from the archeological record that the ancient Egyptians could core drill the hardest of natural stone. Previously, the tool to core drill, the core drill bit, has never been identified. The ...

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The correlation between drilling efficiency, rock hardness, drilling strength and triaxial strength was investigated by Clark (Clark, 1979). According to study done by Paone (Paone et al., ...



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