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THE ACCURACY OF DETECTION OF UNDERGROUND NUCLEAR EXPLOSIONS DURING ON-SITE INSPECTION BASED ON CHANGES IN RESIDUAL MAGNETIZATION

To improve on-site inspection detection techniques, it is proposed to investigate the area based on changes in the local electromagnetic field of the Earth in the vicinity of the explosion site for residual magnetization.

As part of the research conducted by MEPHI students, approaches aimed at analyzing changes in the electromagnetic characteristics of the environment are being developed. The main idea is to study changes in the geomagnetic field resulting from irreversible deformations and fractures at the site of an underground explosion.

The upgraded approach includes the use of measuring systems that make it possible to record the residual magnetization and current distribution in a disrupted environment. These data are used to evaluate the parameters of the explosive impact, such as the size of the destruction zone and changes in electrical conductivity.

The proposed method will increase the reliability of the detection due to a prolonged altered state (medium magnetization up to several months) after the test. The study highlights the contribution of MEPHI students to the development of technologies to improve the accuracy of verification and ensure nuclear safety.

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