

**Voznesenskiy A. S., Tamarin D. V., Nabatov V. V.**  
**ESTIMATION OF THE STRESS-STRAIN STATE OF THE GEO MEDIUM ON SIMULTANEOUS  
ACOUSTIC AND ELECTROMAGNETIC EMISSION MEASUREMENTS**

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The paper is dedicated to application of the correlation coefficient between acoustic emission and electromagnetic radiation parameters for the gypsum pillars edge zone state estimation. It is cleared-up that in case of positive correlation coefficient values rock is in pre-limiting state, in case of negative values it is near limiting state. It is discovered that the negative values of correlation coefficient are typical for pillar's edge zones, and the positive values of this one are typical for deeper zones.

**E. A. Voznesenskiy**  
**IDENTIFICATION OF DEFECTIVE ANCHORS IN UNDERGROUND MINING EXCAVATION BY  
THE ANALYSIS OF THE ACOUSTIC RESPONSE**

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*Methods of the weakened anchors detection in underground mining excavation by the spectral analysis of the response to short impact are considered. The distance between centers of clusters organizing in 7-dimensional space of parameters is used for the identification. Root-mean-square values of spectral component amplitudes in seven bands of frequencies is used as the estimation. It is shown, that this distance for the weakened anchor up to several times exceeds similar values for other combinations of anchors. The similar result was obtained for the estimation of the geomaterial in intervals between anchors.*

**V. L. Shkuratnik, E. A. Voznesenskiy**  
**SPATIAL CORRELATION OF ACOUSTIC EMISSION PARAMETERS IN UP TO AND AFTER  
ULTIMATE STRENGTH CONDITIONS OF ROCK AT ITS DEFORMATION**

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*It is established on laboratory experiments on samples of coal, that positive values of acoustic emission activity (AEA) correlation coefficient characterize stage up to ultimate strength of deformation, and negative one characterize stages of ultimate strength and after it. AEA is registered on two channels nonoverlapping in space. Negative values of correlation coefficient of parameters of the seismic events registered in different spatial zones in coal layer testify to the tectonic fault placed between these zones.*

**Vartanov A.\*, Gladun G.\*, Averin A.\*\***  
**ULTRASONIC MONITORING PROCESS HARDEN ROCK IN A FOUNDATION FOR THE  
CONSTRUCTION OF HIGH-RISE BUILDINGS**

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*You have a set of logging ultrasound, and physical and mechanical properties of acoustic rock in a foundation for monitoring and forecasting processes and harden their carrying capacity in the construction of high-rise buildings.*