Dear reviewer 2#：

We are very grateful for your comments, we have made modifications and proofreading based on the reviewer 1# and 2#, the revised parts have been marked in red in revised version, and the detail modifications are shown in detailed revision. We look forward to hearing from you.

Best regards,

Yimin Liu and Jinwu Luo.

Detailed revision:

1. The abstract and conclusions should be more concise, as it seems that there are too many words in the initial draft.

Modification: We have simplified the abstract in revised version.

2. More representative literature should be selected in the literature review.

Modification: We have removed some literature that is not strongly related to the topic of this paper, such as Guo et al. (2023).

3. The content of Chapter 3.1 is not very relevant to the main content of this paper. It is recommended to merge and rewrite Chapter 3.1 and 3.2.

Modification: We have redesigned the structure of Chapter 3, removing some content from Section 3.1 and merging the rest into Section 3.2 to make it more closely aligned with the theme of the paper.

4. This article only establishes a compensation model for in-situ stress calculation of granite core. What if the generalization ability of this model is improved?

Modification: Thank you for raising the important issue of the model's generalization capability. We recognize the need to further validate and discuss the model's applicability across diverse geological environments and construction conditions. While the MLP-KFold model demonstrated remarkable performance on the test set with a coefficient of determination (R^2=0.9937), it is acknowledged that the diversity of rock types, formation conditions, and construction parameters in real-world applications could pose challenges to the model's generalization capability, and the following aspects discussed in section 5.3 in red.

(1) Cross-Validation with diverse datasets: by merging cross-validation with datasets spanning various geological settings and construction conditions with field trials in multiple locations, we can comprehensively assess the model's performance in real-world applications. This integrated method not only identifies potential weaknesses or biases in the model but also provides empirical data from different geological environments, thereby enabling targeted adjustments to improve generalization.

(2) Incorporation of additional features: to further bolster the model's adaptability, we advocate for the incorporation of additional features that encapsulate the variability in geological and construction parameters. These features may encompass rock anisotropy, formation fluid properties, and dynamic construction variables, among

others. In parallel, establishing a framework for continuous model updating based on new data and feedback from field applications ensures the model evolves with emerging geological and construction challenges, maintaining its accuracy and relevance.

In summary, these strategies aim to enhance the model's generalization capability and reliability across a broad spectrum of practical applications. Future efforts will concentrate on expanding the dataset, conducting extensive field trials, and refining the model to address the intricacies of real-world hydraulic fracturing operations.

5. The MSZK and ZPZK boreholes in engineering application should not reflect the specific location, just use a certain drilling hole.

Modification: We have removed the specific locations of MSZK and ZPZK boreholes in Chapter 6.

6. Please adjust the font size of the pictures in the paper to maintain consistency.

Modification: We adjusted the dimensions of Figures 3, 4, 5 and 9 to be consistent with the font in the main text.