**Reviewer #2:** The research work is based on pure theoretical derivation and simulation analysis. Many mature commercial software has good calculation and analysis functions. Therefore, the innovation of the research work is insufficient, and the practical guiding role of the project is insufficient. In addition, there are too many sections and too long length. It is suggested to carry out targeted research on an innovative problem to avoid lengthy discussion. Unfortunately, the existing manuscript cannot be supported.

Dear Reviewer,

Thank you for your thorough feedback on our manuscript. We appreciate your observations and would like to address the concerns raised:

1. Innovation and Practical Guiding Role

While we acknowledge that the study relies on theoretical derivation and simulation analysis, our focus was to address a specific gap in the literature: the coupled effects of time-dependent material behavior, twin tunnel proximity, and transverse gallery interaction on deformation profiles. To our knowledge, the integration of advanced constitutive models, such as coupled plasticity-viscoplasticity for rock and aging viscoelasticity for lining materials, into a fully three-dimensional finite element framework is not comprehensively addressed in existing studies. Moreover, the findings highlight critical design considerations, such as deformation anisotropy and peak convergence values at tunnel-gallery junctions, which provide valuable insights for safe and efficient design of complex underground structures.

1. Use of Commercial Software

While commercial software provides robust tools for general calculations, our study required custom implementation of constitutive models and excavation simulations tailored to the unique configurations of twin tunnels with transverse galleries. These extensions were necessary to capture the specific interactions and time-dependent behaviors that are often oversimplified or unavailable in standard commercial solutions.

1. Manuscript Length and Structure

We agree that the manuscript's length and number of sections may appear extensive. However, this was intended to provide a comprehensive and detailed exploration of the topic. Based on your feedback, we will streamline the discussion, remove redundancies, and focus more on the key findings to enhance readability and conciseness.

1. Targeted Research on an Innovative Problem

We appreciate your suggestion to focus on a more targeted innovative problem. We believe the coupling of plasticity-viscoplasticity and viscoelasticity in the context of three-dimensional simulations already offers a novel contribution. Nonetheless, we will refine the manuscript to better emphasize the innovative aspects of our work and clarify its relevance to practical tunneling challenges.

We value your constructive comments and will use them to improve the manuscript significantly. We hope that these revisions will address your concerns and allow for reconsideration of the study.

Thank you for your time and valuable input.