

REVIEWER'S REPORT

Manuscript No.: IJAR-52151

Date: 12-06-2025

Title: Exploring the Relationship between NDT and DT Techniques in Concrete: Linear, Quadratic, and Cubic Correlation Models

Recommendation:

Accept as it is.....**YES**.....
 Accept after minor revision.....
 Accept after major revision
 Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality		√		
Techn. Quality		√		
Clarity		√		
Significance		√		

Reviewer's Name: Dr Aamina

Reviewer's Decision about Paper: **Recommended for Publication.**

Comments (*Use additional pages, if required*)

Reviewer's Comment / Report

Abstract Review:

The abstract provides a clear and structured overview of the study's objective, methodology, and key findings. It succinctly presents the comparison between Non-Destructive Testing (NDT) and Destructive Testing (DT) techniques in evaluating concrete strength. The use of various regression models—linear, quadratic, and cubic—is effectively highlighted, and the strong correlation coefficients (R^2 values) are noted, reinforcing the reliability of NDT when calibrated against DT. The relevance of the study is well established, particularly in its emphasis on the potential of NDT to provide accurate, time-efficient, and minimally invasive strength assessments, which are critical for ensuring structural safety.

Introduction Review:

The introduction comprehensively sets the context by emphasizing the widespread use of concrete in critical infrastructure and the importance of evaluating its performance under both static and dynamic loading conditions. It delves into the mechanical behavior of concrete, notably under dynamic loads, and discusses the influence of strain rate effects, heterogeneity, and mesostructural characteristics on concrete's strength and fracture behavior. The references to computational advances and the importance of understanding fracture propagation in mission-critical structures contribute to a robust and technically sound background. The paragraph establishes the importance of precision in strength assessment, setting the stage for the comparative analysis of NDT and DT presented in the study.

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Overall Assessment:

The abstract and introduction together lay a solid foundation for the study, articulating its scientific premise and practical implications. The discussion of complex mechanical interactions and the emphasis on modeling reflect a deep engagement with the subject matter. The writing is coherent, focused, and demonstrates an understanding of the broader engineering and material science considerations involved in concrete evaluation.