

CONSTITUTIVE MODEL FOR THE ANALYSIS OF THE BEHAVIOR AND MECHANICS OF WOOD DAMAGE

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Wood is a heterogeneous material, whose morphology and topology make the prediction of its mechanical behavior complex under different boundary conditions [1-3]. In this way, different constitutive models with different scale lengths have been developed since the middle of the 20th century to predict the behavior and mechanics of wood damage [3-8]. However, there is still no agreement on which constitutive model or scale length allows for a more consistent representation of behavior and damage mechanics mentioned.

This article seeks to contribute to the discussion a new constitutive model for the analysis of the behavior and mechanics of wood damage. To do this, we present the implementation in a user subroutine for Abaqus [9], of a viscoelastic constitutive model based on the generalized Maxwell criterion for the elastic regime with a macroscale model [10] [11]; the onset and the damage evolution law are analyzed under a mesoscale model based on the progressive degradation of cracking parallel and perpendicular to the fiber [12-14].

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