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Finite Element Simulation of Transient Response Analysis of CFRP Plates

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Abstract - A developed finite element analysis investigation into failure behaviour of carbon fibre reinforced polymer plates subjected to dynamic loads are undertaken using ANSYS. Transient analysis is done considering three different thicknesses of plates (20mm, 25mm and 30mm) for C-F-C-F boundary condition. Work is concentrated on studying the failure criteria in CFRP plates for both before and after damage conditions. Dynamic load is applied to the plate in form of pressure force. The parameters like frequency, stress, velocity and acceleration are obtained for all the plates before and after damage conditions and comparative graphs are drawn for stress distribution and acceleration. Conclusions are arrived based on the failure analysis of the obtained graphs.