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Experimental investigation on damage evolution in cross-ply laminates subjected to quasi-static and fatigue loading

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Experimental investigation on damage evolution in cross-ply laminates subjected to quasi-static and fatigue loading		
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Abstract: In this paper an experimental investigation on damage evolution in		
cross-ply glass fiber reinforced plastic (GFRP) laminates under quasi-static and		
fatigue loading is presented. Four configurations of lay-up $([0_2/90_4]_s, [0_2/90_2]_s,$		
$[0/90_4]_s$ and $[0/90_3/0/90_3]_s$) with different thicknesses of cracking plies were selected		
to study the in-situ behavior in the damage initiation, evolution and saturation.		
Combined with the imaging features of different damages and the characteristic of		
damage evolution in the laminates, light transmission method was employed to		
observe the damage state and to record matrix crack density. In fatigue tests, eight		
stress levels were chosen for each configuration of laminates, including four lower		
stress levels below the stress level corresponding to the first transverse crack initiation		
A conclusion was drawn from the comparison of the results that the fatigue loading		

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