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DYNAMIC BUCKLING BEHAVIOR OF 3D-PRINTED POLYMER STRUCTURES

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DYNAMIC BUCKLING BEHAVIOR OF 3D-PRINTED POLYMER
STRUCTURES

BY

NATHAN GRANTHAM-COOGAN

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Abstract

This experimental study investigates the critical buckling behaviors and the underwater characteristics of 3D-printed polymers. High-speed photography and Digital Image Correlation (DIC) were utilized to capture full-field displacements during the collapse event. Additionally, piezoelectric transducers recorded local dynamic pressure histories of the tubes during failure. A numerical model is also used for predicting collapse and comparing results.

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