



Failure Models and Criteria for FRP  
Under In-Plane or Three-Dimensional  
Stress States Including Shear Non-  
Linearity

NASA Technical Reports Server  
(NTRS), et al., Silvestre T. Pinho



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## Failure Models and Criteria for Frp Under In-Plane or Three-Dimensional Stress States Including Shear Non-Linearity

By Silvestre T. Pinho

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 72 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. A set of three-dimensional failure criteria for laminated fiber-reinforced composites, denoted LaRC04, is proposed. The criteria are based on physical models for each failure mode and take into consideration non-linear matrix shear behaviour. The model for matrix compressive failure is based on the Mohr-Coulomb criterion and it predicts the fracture angle. Fiber kinking is triggered by an initial fiber misalignment angle and by the rotation of the fibers during compressive loading. The plane of fiber kinking is predicted by the model. LaRC04 consists of 6 expressions that can be used directly for design purposes. Several applications involving a broad range of load combinations are presented and compared to experimental data and other existing criteria. Predictions using LaRC04 correlate well with the experimental data, arguably better than most existing criteria. The good correlation seems to be attributable to the physical soundness of the underlying failure models. This item ships from La Vergne, TN. Paperback.



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