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| Nota di contenuto | 1 Introduction -- References -- Part I Interface Fracture -- 2 Fundamentals of interface fracture mechanics -- 2.1 Stress and displacement field in the neighborhood of an interface crack tip -- 2.2 Interface energy release rate -- 2.3 Fracture criterion -- References -- 3 Calculation of stress intensity factors — an interface crack -- 3.1 Finite element method -- 3.2 Displacement extrapolation method -- 3.3 M-integral -- 3.4 Virtual crack closure technique -- References -- 4 Testing—interface crack between two isotropic materials -- References -- Part II Delaminations in Composites -- 5 Mathematical treatment of delaminations -- 5.1 The 0o/90o interface -- 5.2 The +45°/ - 45° interface -- 5.3 The +30°/ - 60° and -30°/ + 60° |

interfaces -- 5.4 An interface between two woven plies -- 5.5 Afterword -- References -- 6 Methods of calculating stress intensity factors— Delaminations -- 6.1 Displacement extrapolation -- 6.2 M-integral -- 6.3 Virtual crack closure technique -- References -- 7 Testing-delamination between two dissimilar plies -- 7.1 Failure of a delamination in a cross-ply -- 7.2 Beam type specimens -- References -- Appendix A. Stress and displacement functions for the flrst term of the asymptotic expan on of an interface crack between two linear elastic, homogeneous and isotropic materials -- Appendix B. Matricesfor different anisotropic material pairs -- B.1 The 0o/90o pair -- B.2 The +45°/ - 45° pair -- B.3 The +30°/ - 60° pair and the -30°/ + 60° pair -- B.4 Multi-directional woven material -- References -- Appendix C. Stress and displacement fiinctions for the first term of the asymptotic expansion of an interface crack between two amsotropic materials—the 0o /90o pair -- References -- Index. .

Sommario/riassunto

Part I of this SpringerBrief presents the problem of a crack between two dissimilar isotropic materials and describes the mathematical background. A fracture criterion is discussed and Methods for calculating fracture parameters such as stress intensity factors using the finite element method and three post-processors are considered. Actual test data and both deterministic and statistical failure curves are presented. In Part II of the book, similar descriptions are given for delaminations in composite laminates. The mathematical treatment of this type of damage including the first term of the asymptotic expansion of the stress and displacement fields is considered. Numerical post-processors for determining stress intensity factors for these cases are reviewed. Two examples of specific laminates are presented: one with a failure curve and the other with a failure surface. Finally, beam specimens used for testing such failures are discussed. iv>.