Advanced composites in bridge construction and repair

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Advanced composite materials for bridge structures are recognized as a promising alternative to conventional construction materials such as steel.
After an introductory overview and an assessment of the characteristics of bonds between composites and quasi-brittle structures, Advanced composites in bridge construction and repair reviews the use of advanced composites in the design and construction of bridges, including damage identification and the use of large rupture strain fiber-reinforced polymer (FRP) composites. The second part of the book presents key applications of FRP composites in bridge construction and repair, including the use of all-composite superstructures for accelerated bridge construction, engineered cementitious composites for bridge decks, carbon fiber-reinforced polymer composites for cable-stayed bridges and for repair of deteriorated bridge substructures, and finally the use of FRP composites in the sustainable replacement of ageing bridge superstructures.