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Nota di contenuto	Introduction -- Review of Reliability-Based Risk Analysis Methods Used in the Offshore Wind Industry -- Floating Offshore Wind Turbine Systems -- Modeling, Automated Simulation, and Optimization -- Design Optimization of FloatingWind Turbine Support Structures -- Reliability-Based Design Optimization of a Spar-Type FloatingWind Turbine Support Structure -- Discussion -- Conclusions.
Sommario/riassunto	This book pursues the ambitious goal of combining floating wind turbine design optimization and reliability assessment, which has in fact not been done before. The topic is organized into a series of very ambitious objectives, which start with an initial state-of-the-art review, followed by the development of high-fidelity frameworks for a disruptive way to design next generation floating offshore wind turbine (FOWT) support structures. The development of a verified aero-hydro-servo-elastic coupled numerical model of dynamics for FOWTs and a holistic framework for automated simulation and optimization of FOWT systems, which is later used for the coupling of design optimization with reliability assessment of FOWT systems in a computationally and time-efficient manner, has been an aim of many groups internationally towards implementing a performance-based/goal-setting approach in the design of complex engineering systems. The outcomes of this work

quantify the benefits of an optimal design with a lower mass while fulfilling design constraints. Illustrating that comprehensive design methods can be combined with reliability analysis and optimization algorithms towards an integrated reliability-based design optimization (RBDO) can benefit not only the offshore wind energy industry but also other applications such as, among others, civil infrastructure, aerospace, and automotive engineering.
