

1. Record Nr.	UNINA9910484970503321
Autore	Pan Binbin
Titolo	Multidisciplinary Design Optimization and Its Application in Deep Manned Submersible Design // by Binbin Pan, Weicheng Cui
Pubbl/distr/stampa	Singapore : , : Springer Singapore : , : Imprint : Springer, , 2020
ISBN	981-15-6455-8
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (302 pages)
Collana	Ocean Engineering & Oceanography, , 2194-6396 ; ; 13
Disciplina	620.4162
Soggetti	Ocean engineering Statistics Mathematical optimization Oceanography Quality control Reliability Industrial safety Offshore Engineering Statistics for Engineering, Physics, Computer Science, Chemistry and Earth Sciences Optimization Quality Control, Reliability, Safety and Risk
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Theory of Multidisciplinary Design Optimization,- Theory of Uncertainty -- Reliability and Its Analysis -- Multidisciplinary Design Optimization Based on Reliability -- Design of Deep Manned Submersible -- Application of Multidisciplinary Design Optimization in DMS. .
Sommario/riassunto	This book investigates Reliability-based Multidisciplinary Design Optimization (RBMDO) theory and its application in the design of deep manned submersibles (DMSs). Multidisciplinary Design Optimization (MDO) is an effective design method for large engineering systems like aircraft, warships, and satellites, which require designers and engineers from various disciplines to cooperate with each other. MDO can be

used to handle the conflicts that arise between these disciplines, and focuses on the optimal design of the system as a whole. However, it can also push designs to the brink of failure. In order to keep the system balanced, Reliability-based Design (RBD) must be incorporated into MDO. Consequently, new algorithms and methods have to be developed for RBMDO theory. This book provides an essential overview of MDO, RBD, and RBMDO and subsequently introduces key algorithms and methods by means of case analyses. In closing, it introduces readers to the design of DMSs and applies RBMDO methods to the design of the manned hull and the general concept design. The book is intended for all students and researchers who are interested in system design theory, and for engineers working on large, complex engineering systems.

---