1. Record Nr. UNINA9910366618403321

Autore	Jahangiri Tohid
Titolo	Electrical Design of a 400 kV Composite Tower / / by Tohid Jahangiri, Qian Wang, Filipe Faria da Silva, Claus Leth Bak
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020
ISBN	3-030-17843-9
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (249 pages)
Collana	Lecture Notes in Electrical Engineering, , 1876-1100 ; ; 557
Disciplina	621.310285536
Soggetti	Power electronics Energy systems Ceramics Glass Composites (Materials) Composite materials Power Electronics, Electrical Machines and Networks Energy Systems Ceramics, Glass, Composites, Natural Materials
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Fiber Reinforced Plasctic (FRP) composite selection for the composite cross-arm core -- Air clearances of fully composite pylon -- Electrical design of fully composite pylon -- Electric field verification by high voltage experiments on the composite cross-arm -- Lightning shielding performance of fully composite pylon -- Lightning shielding failure investigation by high voltage experiments -- Environmental effects of fully composite pylon.
Sommario/riassunto	This book presents an innovative concept for designing a 400 kV double circuit composite tower. The major challenges encountered by the authors in the electrical design process of the composite tower are addressed. They concern material selection for the full composite cross-arm core, electrical insulation of the cross-arm, electrical dimensioning of the full composite tower, lightning shielding performance and failure of the full composite tower. The electric field

performance of the tower’s insulation has been investigated theoretically by using finite element method and experimentally by testing different fiber reinforced polymers as candidates. The book reports in detail those finite element simulations and tests, together with the authors’ recommendations on the most suitable materials and manufacturing process as well as conductor clamp designs for the cross-arm. Another important issue of the full composite tower, which concerns the environmental aspects of the full composite tower, has also been evaluated. This book offers a timely reference guide on a highly innovative topic, addressing researchers working on power transmission system both in industry and academia.