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Titolo	Topology-Based Modeling of Textile Structures and Their Joint Assemblies : Principles, Algorithms and Limitations / / by Yordan Kyosev
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ISBN	3-030-02541-1
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (238 pages)
Disciplina	677
Soggetti	Textile industry Materials science Manufactures Computer simulation Textile Engineering Characterization and Evaluation of Materials Manufacturing, Machines, Tools, Processes Simulation and Modeling
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction and problem definition -- Topology based models of tubular and flat braided structures -- Evaluation of the properties of braided structures based on topological models -- Process emulation based development of braided structures and machines -- Topological modeling of knitted structures -- Truss framework model for warp knitted structures -- Notes about topological methods for woven structures -- Topology based modeling of sewing stitches -- Extending to filament level and interplation issues -- Assembly level-- from textile structures to textile assemblies -- Data structures for multiscale modeling of flexible assemblies and software -- Computational mechanics of the one dimensional continuum as refinement of the toplogy based models -- Applications of the toplogical generated models -- Summary.
Sommario/riassunto	This book presents the textile-, mathematical and mechanical

background for the modelling of fiber based structures such as yarns, braided and knitted textiles. The hierarchical scales of these textiles and the structural elements at the different levels are analysed and the methods for their modelling are presented. The author reports about problems, methods and algorithms and possible solutions from his twenty year experience in the modelling and software development of CAD for textiles.