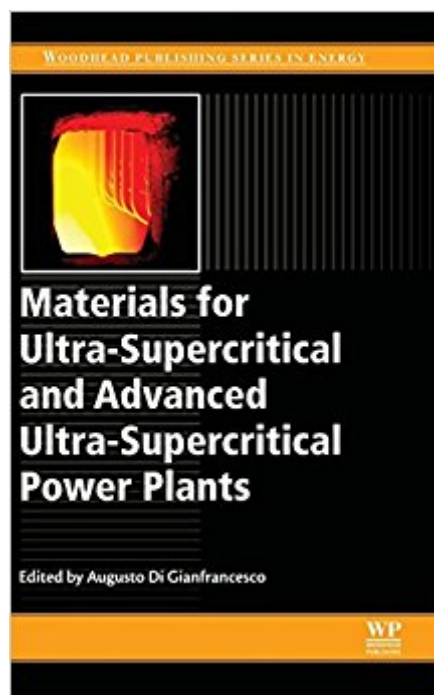


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# Materials For Ultra-Supercritical And Advanced Ultra-Supercritical Power Plants (Woodhead Publishing Series In Energy)



## Synopsis

Materials for Ultra-Supercritical and Advanced Ultra-Supercritical Power Plants provides researchers in academia and industry with an essential overview of the stronger high-temperature materials required for key process components, such as membrane wall tubes, high-pressure steam piping and headers, superheater tubes, forged rotors, cast components, and bolting and blading for steam turbines in USC power plants. Advanced materials for future advanced ultra-supercritical power plants, such as superalloys, Å Å new martensitic and austenitic steels, are also addressed. Chapters on international research directions complete the volume. The transition from conventional subcritical to supercritical thermal power plants greatly increased power generation efficiency. Now the introductions of the ultra-supercritical (USC) and, in the near future, advanced ultra-supercritical (A-USC) designs are further efforts to reduce fossil fuel consumption in power plants and the associated carbon dioxide emissions. The higher operating temperatures and pressures found in these new plant types, however, necessitate the use of advanced materials. Provides researchers in academia and industry with an authoritative and systematic overview of the stronger high-temperature materials required for both ultra-supercritical and advanced ultra-supercritical power plantsCovers materials for critical components in ultra-supercritical power plants, such as boilers, rotors, and turbine bladesAddresses advanced materials for future advanced ultra-supercritical power plants, such as superalloys, Å Å new martensitic and austenitic steelsIncludes chapters on technologies for welding technologies

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## Customer Reviews

Dr Augusto Di Gianfrancesco is a Materials & Technologies Consultant, Italy. He was based at Centro Sviluppo Materiali (CSM), Rome, Italy 1983 until 2014. He held Senior Metallurgist and Project Leader positions on "High Temperature Materials". He was responsible for R&D activities on steels and superalloys for high temperature applications in power generation plants. He was also member of Management Committee of EU Program COST 522-536, co-founder of the European Creep Collaborative Committee and co-founder of the Italian Working Group on Creep Resistant Materials. In addition he has been member of the International Board of the 5th, 6th & 7th EPRI International Conferences on Advances in Materials Technology for Fossil Power Plants, METAL2013/4/5, the 6th International Conference on Creep, Fatigue and Creep-Fatigue Interaction, and vice chairman of the 3rd ECCC Conference held 2014 in Rome. He is author and/or co-author of more than 280 technical reports and more than 100 papers presented in national and international conferences or magazines.

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