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| Sommario/riassunto | This reprint is a collection of recent advanced studies in the field of heat and fluid flow in porous media. The pore size of the studied porous media in this reprint starts from a nanoscale, and the applications include the drying process of materials such as clay and lentil grain as well as the enhancement of heat transfer by using high thermal conductive porous media such as metal foams and stacked woven wire mesh. The use of a suitable porous structure for helium gas cooling under high heat flux conditions of a nuclear fusion divertor is an interesting application of porous structures for heat transfer enhancement, which is discussed in this reprint. A method for the trade-off thermo-hydrodynamic performance of a porous medium, which is an important issue for heat transfer enhancement, is also discussed. In the performed numerical studies, different methods such as finite volume method, lumped analysis and molecular dynamics are employed. Heat and mass transfer in structural ceramic blocks is analyzed by an analytical and phenomenological approach. All chapters of this reprint are advanced studies including wide application areas of porous media as well as interesting computational models that are useful for the researchers in the field of "Heat Transfer in Porous Media". |