TRANSIENT COMBINED RADIATION AND CONDUCTION HEAT TRANSFER IN FIBROUS MEDIA

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ABSTRACT. Transient nature of combined heat transfer by radiation and conduction in a fibrous medium is studied with temperature conditions imposed on the boundaries. The Mie theory is used to calculate the monochromatic scattering and absorption coefficients as well as the phase function. The equations modelling heat transfers are solved using a unidimensional model with numerical methods based on a discretization of the medium. Simulation results are presented for an insulator layer made of silica fibers.