

Abstract:

The basic ideas of local-equilibrium thermodynamics for heat transfer in the framework of classical Fourier's law will be presented. The Fourier equation will be generalized with relaxation terms and non-local terms, and we will show how the thermodynamical consistency of the generalized transport laws requires an extension of the entropy and of the entropy flux beyond local equilibrium. Eventually, the consequences of the extended non-equilibrium entropy on the concept of temperature beyond local equilibrium will be discussed.