

عنوان مقاله:

The Behavior of Heat Flow and Temperature under Quantum-Relativistic Conditions

محل انتشار:

مجله تحقیقات انتقال حرارت و توده, دوره 11, شماره 1 (سال: 1403)

تعداد صفحات اصل مقاله: 8

نویسنده:

Arezu Jahanshir - Department of Physics and Engineering Sciences, Buein Zahra Technical University, Buein Zahra, ۳۴۵۱۸۶۶۳۹۱, Iran

خلاصه مقاله:

In this article, the effect and behaviour of ultra-high-velocity heat motion are described. The ultra-high velocity of heat conduction in a system composed of particles in gas form is viewed as the motion of particles that aligns with the principles of thermodynamics, the theory of relativity, and quantum physics theory. An alternative method for ultra-high velocity heat conduction has been developed and explained. This method has been achieved by using the Lowrance invariant of the microscopic environment in Makowski spacetime, hence both quantum and relativistic concepts are used, presenting a quantum-relativistic environment. The average number of field quanta has been obtained based on the relativistic effect, which is connected with the constituent mass of particles and determines the density matrix of a quantum oscillator. The presented relativistic heat conduction model is theoretically consistent with many important laws of physics and provides a more accurate representation of heat conduction in many technologically important situations.

کلمات کلیدی:

Fourier' s law, Lowrance invariant, Relativistic conditions, Space-like time, Temperature, thermodynamics

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/2072232>

