

# 《量子物理与材料化学杂志》

Journal of Quantum Physics and Materials Chemistry



# ChengZhu Science™

江西省诚筑环保工程有限公司主办

2022 年 11 月刊物/Serial in November, 2022

出版人： 刘焕 香江出版社有限公司

**Publisher: Liu Huan, Xiangjiang Publishing Company Ltd.**



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**Article 8. The Principal of Thermodynamics: The Inner Energy, Energy Loss and Materials Perishing /热力学原理：内能，能量损耗与材料老化**

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DOI: [10.58473/JQPMC0008](https://doi.org/10.58473/JQPMC0008) Retrieval from official database: [www.crossref.org](http://www.crossref.org)

**Latest revised on 25/05/2023.**

This article distinguishes the difference between thermal energy and inner energy. The range of energy forms defined in inner energy is broader than thermal energy, because not all the energy forms defined in inner energy generate the thermal effects, for example, the kinetic energy of molecule motion, defined in inner energy, can not completely be converted into thermal effects. In my article, it is defined that the electromagnetic waves emitted by molecule motion is the transmission pathways/forms of thermal energy, excluding the kinetic energy transmission, the static magnetic field transmission, and the static electric field transmission. The collisions among molecules or atoms lead to energy lose. This energy lose is caused by the aging of dark matter energy binder, so the nature of materials perishing is the aging of dark matter binding micro-particles, which is further discussed in another article [2]. Nevertheless, the lower density among molecules usually leads to less collisions so that less energy lose is caused correspondingly.

When the molecules of materials is heated by other sources of thermal energy, the frequency of molecule revolution is risen so that higher intensity of electromagnetic waves is emitted by molecule motion and higher frequency of collisions among molecules is caused as well. More specifically and exactly, when the transmission pathway/form of thermal energy is defined as the electromagnetic waves emitted by molecule motion, the molecule or atom motion forms are distinguished in my thermal energy definition: the molecule or atom itself revolution/rotation is the main source of thermal effects, whereas the relative motions among different molecules or atoms, which is irregular in comparison, becomes the minor thermal sources and leads to energy loses by the collisions among them. The dark matter plays the role in the resilience function like mechanical spring here: when the molecule or atom approaches another molecule or atom, the dark matter reduces the relative velocity between them; subsequently when the molecule or atom moves away from it, the dark matter accelerates the relative velocity between them. If there is no aging of dark matter binding micro-particles, the average relative speed between them is constant without energy lose. Once the external thermal sources stop heating the receptor

materials, this process is reversible.

When the object materials is heated by external work (rather than thermal sources), such as squeezing force imposed, the accelerated relative motions among different molecules or atoms becomes the main sources of heating transmission (rather than the molecule or atom itself revolution/rotation). Consequently, compared with the external thermal sources, the work imposed by external physical movement usually leads to less efficiency due to the lower frequency of electromagnetic waves emitted by molecule motion and more energy lose caused by the collisions among molecules and atoms.

Please note: This is the revised materials in book “Proceedings for Degree of Postgraduate Diploma in Environmental Science (3rd Edition).” published in 2016. Revised on 31/12/2020; Thirdly Revised on 09/10/2021; Fourthly Revised on 25/10/2021. This journal article is previously published as: Liu Huan. (2021). The Principal of Thermodynamics: The Inner Energy, Energy Loss and Materials Perishing. Journal of Environment and Health Science (ISSN 2314-1628), 2021(02), which is converted into Journal of Quantum Physics and Materials Chemistry (ISSN2958-4027). Both Journals belong to the same publisher, Liu Huan. The previous journal article is closed to the public, but the previous reference is still valid. Latest revised on 18/05/2023;25/05/2023.

**References:**

- [1]. 搜狗百科, 共享百科全书/Sogou Baike, Creative Commons.
- [2]. Liu Huan. (2021). Van der Waals force and Dark Matter. Journal of Environment and Health Science (ISSN 2314-1628), 2021(02).  
<https://doi.org/10.58473/JQPMC0006>