



Title

Author 1 ^{1,◊}, and Author 2 ^{2,¥}

¹ Institution, address.

² Institution, address.

To cite this article:

Author 1, and Author 2. “Title”, *Parana Journal of Science and Education*. Vol. 7, No. 10, **2021**, pp. x-x.

Received: Month x, 2021; **Accepted:** Month x, 2021; **Published:** Month x, 2021.

Abstract

XXXXXX.

Keywords: XXXXX.

^{1◊} Email:

[¥] Email: (Corresponding Author)



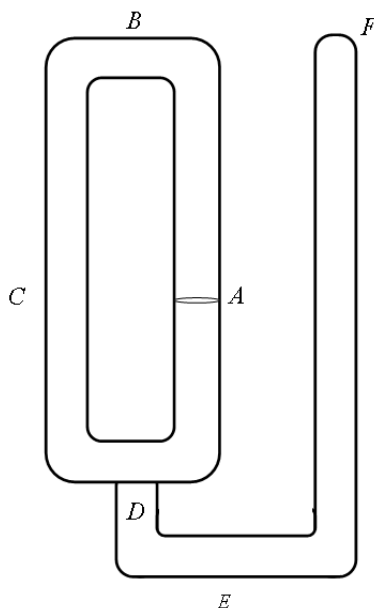
1. Introduction

Another well-known example of non-reciprocal devices is found in electromagnetic fields. Actually, the reciprocity theorem was proved for the electromagnetic radiation in absence of a magnetic field [2]. In the practice, the non-reciprocal devices are implemented in form of microwave or optical devices with one-way bandwidth [3, 4]. Those devices are based on the Faraday Effect, i.e. on rotation of a polarization plane of electromagnetic waves in a medium located in a magnetic field.

2. Development

A non-reciprocal optical device can be used as a one-way thermal radiation valve. In this case, it is not hard to imagine a device, which transmits some thermal radiation from a less heated body to a more heated one. This is a heat engine; theoretically, it is capable of taking thermal energy from a medium being in thermal equilibrium. It is self-evident that such a “*perpetuum mobile of the second kind*” has no practical significance, as under normal conditions, the energy flow from bodies is insignificant.

Figure 1: xxxxxx.



Source: xxxxx.

3. Methods

First, of interest for us, the law is of the gas expansion/compression in pipes of a constant cross-section. Unlike the well-known (in the hydrodynamics) adiabatic gas flow in pipes of a

4. Results

First, of interest for us, the law is of the gas expansion/compression in pipes of a constant cross-section. Unlike the well-known (in the hydrodynamics) adiabatic gas flow in pipes of a

5. Conclusions

Here has observed a combination of the rotation with the plasma expansion into gravity fields. All this suggests that has are dealing here with the processes described by the shock adiabatic, which is so effective in heat converting into the kinetic energy.

References

- [1] Ando F, Miyasaka Y, Li T и др. *Observation of superconducting diode effect*. Nature **volume 584**, pages 373–376 (2020).
- [2] Vaganov R. B., Katsenelenbaum B. Z. *Osnovy teorii difraktsii.*— Moscow, Nauka. p, 272. (1982).