

# EXPERIMENTAL STAND FOR THE STUDY OF THE FUNCTIONING OF MAGNETIC LEVITATION VEHICLES

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**Abstract:** Each person allocates a considerable amount of time to moving around, with or without transportation means. For the movement to be minimal, people search for ways to use those systems and transportation means with the smallest duration for the considered distance.

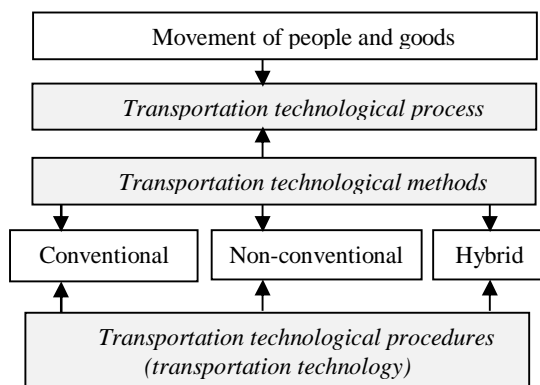
A solution for this is nonconventional transportation, especially magnetic levitation solutions. An experimental stand has been realized for the study, in a didactical and research context, of the vehicle behavior. This stand reproduces, at scale, the characteristics of a nonconventional magnetic levitation transportation system.

**Keywords:** transport, magnetic levitation transportation system

## 1. General considerations regarding transportation

Transportation is a technological process consisting of the movement of people or goods from the shipping place to the destination, with the help of transportation means on the specific transportation support.

In principle, this process is done based on transportation methods, applying the possible technical procedures (fig.1).



**Figure 1:** The schematic representation of the transportation technological process structure [2]

Conventional transportation systems have several inconveniences, from the standpoint of energy sources, of the speeds they reach, of the

pollution. Therefore, the non-conventional transportation systems which diminish these inconveniences require more attention.

## 2. Guided non-conventional transportation features

Guided non-conventional transportation can be done using specific methods:

- air-cushion transport;
- magnetic levitation transport.

The guided air-cushion transportation was partially abandoned after a period of intense research, for political-economical reasons. It is used for people transportation in amusement parks, expo areas etc. [2]

The air-cushion has a multitude of applications in goods manipulation.

Magnetic levitation transportation [2] has developed during several decennia, being used (experimentally or in traffic) at a reduced scale, but with a relatively large distribution area (Europe, America, Asia). The best known are the trains in Japan, which function based on the interaction of the magnetic fields of the vehicle and the support, through electrodynamic repulsion. The vehicle levitation is done by magnetic repulsion. Equally well-known are the trains in China,