

Seminář odd. 26

Tenkých vrstev a nanostruktur

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TÉMA

Galileo, Descartes and Newton – founders of the language of physics

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Many of the outstanding discoveries in the history of physics were closely tied to fundamental linguistic innovations, which made them possible. The aim of the present paper is an analysis of the main linguistic innovations contained in the works of Galileo, Descartes and Newton.

In Galileo we will focus on the innovations that he introduced into the experimental method and thus fundamentally changed the way how the expressions of the language of physics are related to reality. Since Galileo the majority of terms that occur in physical formulas have an indirect, instrumentally mediated reference.

In Descartes we will focus on the models, which he introduced in order to explain various phenomena. For Descartes, and since Descartes for great part of physics, to understand a phenomenon means to construct its theoretical model, which by means of unobservable quantities and objects explains the observed phenomenon.

In Newton we will focus on his description of interaction. For Newton, and since Newton for all physics, the description of reality consists in the representation of the temporal evolution of the state of the system. We will discuss the series of linguistic innovations that Newton had to introduce in order to create this way of representing reality.

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