Wednesday 24 May 2017, at 15.00

Room 310

Eganova I.A. (Sobolev institute of mathematics), Kallies W.

Foundation of Minkowski's World as a Mathematical Structure: to the Answer for Riemann's Question

B. Riemann's gnoseological question about an internal cause of initiation of metric relations in space with respect to the World of events (space-time) is considered: its solution (on the basis of A.A. Aleksandrov's approach that completes the historical line of G. Minkowski – A.A. Friedman – N.A. Kozyrev, the analysis of the time measurement method in books by Friedman and J.L. Synge, and, most important, the solution of the problem of standard clocks choice by G.J. Withrow) reveals the *a priori interrelation of simultaneous world events*. The authors discuss the physical phenomenon connected to this inherent, constant and continuous interrelation of space-time points, including the corresponding results of astronomic observations, and enumerate the discovered opportunities for interdisciplinary research.

Eganova I.A. (Sobolev institute of mathematics), Kallies W.

Astronomical Observations of an Innate Interconnection in the Space-time

In the light of the physical reality of the World of events (space-time), we discuss the main result of our of several years observations of a reaction of definite geological systems (minerals and mineral aggregates) to the special exposure in the Solar Tower Telescope BST-1 in the Crimean Astrophysical Observatory – phenomenon of the weight (mass) reaction to a projection (on the Sun's parallel of declination) of four-dimensional solar events, of which temporal coordinate coincides with a moment of observations. New practical possibilities for experimental investigations are briefly discussed in conclusion.

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Innate Interconnection in the Space-time: Examples of Shields

The weight (mass) reaction of the ground-based complex systems to total solar eclipse (August 1, 2008) and to Sun shielding by a tower located in the neighborhood of the observation is discussed. This reaction has revealed the basic factor of natural dynamics of weight (mass) of complex systems (i.e. the ones with an internal structure that can stay in different inner states) – the Sun. These observations data were collected by a special geophysical monitoring which every ten seconds synchronously records weight (mass) of some definite geological systems (minerals/mineral aggregates), atmospheric electric field strength, and six physical characteristics of the observation conditions at three geographical points: Dubna,

Nauchny (the Crimea), and Novosibirsk. Due to significance for modern experiments and technologies, a physical phenomenon associated with the role of the Sun in the weight (mass) dynamics is briefly discussed in conclusion.