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**On Logical Error Underlying Classical Mechanics** TEMUR Z. KALANOV, Home of Physical Problems, Pisatelskaya 6a, 100200 Tashkent, Uzbekistan — The logical analysis of the general accepted description of mechanical motion of material point  $M$  in classical mechanics is proposed. The key idea of the analysis is as follows. Let point  $M$  be moved in the positive direction of the axis  $Ox$ . Motion is characterized by a change of coordinate  $x(t)$  – continuous function of time  $t$  (because motion is a change in general). If  $\lim_{\Delta t \rightarrow 0} \Delta t = 0$ , then  $\lim_{\Delta t \rightarrow 0} \Delta x = 0$ , i.e., according to practice and formal logic, value of coordinate does not change and, hence, motion does not exist. But, contrary to practice and formal logic, differential calculus and classical mechanics contain the assertion that velocity  $\lim_{\Delta t \rightarrow 0} \frac{\Delta x}{\Delta t}$  exists without motion. Then velocity  $\lim_{\Delta t \rightarrow 0} \frac{\Delta x}{\Delta t}$  is not real (i.e. not physical) quantity, but fictitious quantity. Therefore, use of non-physical (unreal) quantity (i.e. the first and second derivatives of function) in classical mechanics is a logic error.

Temur Z. Kalanov  
Home of Physical Problems, Pisatelskaya 6a, 100200 Tashkent, Uzbekistan

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