MATHEMATICAL MODELLING - ADVANTAGES AND SHORTAGES

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Normally they tell about advantages of mathematical modelling when they present this technique. Mathematical modelling allows finding out the most essential characteristics of the object studied and abstracting away from non-essential ones. Modelling gives a possibility to formulate hypotheses and to receive new knowledge about the object which were unavailable before. Mathematical modelling gives a possibility to avoid too great expenses, which are needed for direct study. A construction of a model and formalisation of relations between its elements often remove gaps in knowledge about the object and move forward novel quality problems, which could not be formulated beforehand. The shortages of the mathematical modelling are discussed seldom. We tried to discuss these shortages inя [1]. Some errors related to qualification of investigators exist additionally to the shortages related to the modelling method itself. Those are not related to models themselves but possibly reflect the not-enough degree of attention to a model created. One of such shortages is presented by certainty of the future results due to a concrete technique of modelling. In particular, the choice of approximation technique (additive or multiplicative) may define either successfulness or a failure of a death occurrence analysis and life recovery under interdisciplinary approach. Additive approach is inadequate when complex phenomena are analyzed with mathematical modelling. A natural way to solve such problems is a multiplicative analysis [2], which allows complex problems analyzing under strong influences on an organism. In particular, it allows modelling of action of polonium 210 on the organism [3]. Another shortage of the mathematical modelling, which was not discussed beforehand, is the result pre-programming with the model properties (i.e. under a technique already chosen). Authors of the model can build the desired result implicitly or explicitly into its structure, which would guarantee the confirmation, of the proposed hypothesis. Examples of such erroneous approach are publications of some famous western authors [4, 5]. An extensive critics jf the former work is presented in [6]. As for the latter one, the results contradicting its postulates can be found in [7, 8].

References
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