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HARD AND SOFT MATHEMATICAL MODELS AND THEIR APPLICATIONS

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**Research methodology.** One of the important scientific problems of natural history is the probed object conduct foresight problem solution in time and space on the basis of certain knowledge of its initial state. This problem is taken to find out some law which allows to define the object`s future at any moment of time of t>t0 with the time of t0 in the point of space and of x0 in the initial moment.

**Results.** Depending on the degree of the object complication this law can be determined or probable, it can describe the object evolution in time only or in space only and can describe a spatial temporal evolution. Under the dynamic system they understand any object or process, for which a simple certain concept of state as some totality of values has been determined in this moment of time, and the law which describes time history (evolution) of the initial state has been set.

**Novelty.** The mathematical model of the dynamic system is considered to be set if the system parameters have been introduced to determine its state simply, and the law of evolution has been detected.

**The practical significance.** Depending on the degree of approaching, different mathematical models can be put in accordance with the same system.