

# Modeling of non-compatible random events via multidimensional states

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The theory of quantum logics began in the beginning of the 20th century because the classical theory of probability theory did not explain events that occurred in quantum physics. In these days, many scientific schools are interested in the study of non-compatibility and in the study of uncertainty of random events. Algebraic approach is based on the study of more general structures such as Boolean algebra. We will use an orthomodular lattice with at least one state. This structure is called a quantum logic. States on a quantum logic represent probability measures and observables on a quantum logic represent random variables. We will focus on multivariable states that represent measures of intersection, union and symmetric difference in the case of compatibility. Multidimensional states are possible to use for modeling of non-compatible observables, for example, for modeling of joint distribution [1]-[4].

In our contribution we will present short review some of results from the theory of quantum logics.

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