

# On the reliability analysis of complex hierarchical systems

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Most of engineering and biological systems has hierarchical structures. Therefore the analysis of their reliability is a very important problem. In the paper the problem of the reliability of complex hierarchical systems analysis is considered. It is supposed that the failures arise only at the lowest (elementary) level of the system and accordingly to its structural properties lead to the failures of the subsystems of higher levels .

Based on the theory of decomposable semi-regenerative processes some general approach to the analysis of such systems is proposed. Under assumption of the high reliability of the system asymptotic analysis is also possible.