Three Undistinguished Quantum Radiators in Quantified Cavity Field NICOLAE ENAKI, TUDOR ROSCA, Institute of Applied Physics of Academy of Sciences, Chisinau MD2028, R. Modova — In many problems of quantum information it is used the distinguished ensembles of qubits in the realization of quantum states of registers. On the other hand, the Bose-Einstein condensations of atomic ensembles give us the possibility to regard two-level atoms like an undistinguished ensemble. In this representation N two-level atoms have a more reduced number of collective states. In general case, N two-level atoms with the number of states 2^N can be reduced to N+1 states in processes of coherent excitation in according with the undistinguished principle between the radiators. In this paper the behavior of ensemble consisted from three undistinguished atoms in interaction with one mode of microcavity is discussed. This problem is reduced to the solution of characteristic equation for the linear system, which contains N+1equations. We reduced the number of 2^3 states for three two-level radiators to four levels and solved exactly the system of linear equations. The application of cooperative effect of absorption and emission in micromasers is discussed. The condition for lasing and trapping effects is found. The quantum proprieties of cooperative generated field in the cavity are studied.

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