

## **REAL-TIME EXPERT SYSTEM FOR CONTROL OF ELECTROPHYSICAL COMPLEX**

V.V. Ochinsky, Moscow State Engineering Physics Institute(Technical University); V.M. Rybin, Moscow State Engineering Physics Institute(Technical University); G.V. Rybina, Moscow State Engineering Physics Institute(Technical University); V.U. Stepankov, Moscow State Engineering Physics Institute(Technical University)

In this paper the second version of the real-time expert system (RTES) proto- type for control of electrophysical complex (EPhC) is described [1].This prototype realized by Gensym's G2 tools (USA).The modernization of previous RTES prototype version by new subsystems creation and possibilities widening of existing items became main task of the work. This task realization became possible of owing to new technologies of dynamic expert system creation using. So was used problem-oriented G2-based product such as G2 Diagnostic Assistant (GDA). The architecture of this was widen at the expense of including new support subsystems such as: subsystem of electrical energy providing, subsystem water providing, tunnel ventilation subsystem, subsystem of radiation protection, fire-prevention service subsystem.The possibility of quick change of EPhC subsystem configuration is essential feature of new version. For these purposes was designed special mode of automatic generation of new EPhC subsystems configuration in accordance with requests (so-called the "master"). The "master" to represent a tool kit that allowed to create any possible EPhC's configurations by type and quantity definition of used item, asked some little range of questions to developer for it. The other "master's"possibility is operation which allow to optimize configuration of complex for different criterions. This version included also the alarmsituations modeling system. This system permit virtually set extraordinary situation of EPhC's process which can be links with the work damage of one or several EPhC's support subsystems and as a result of it appeared possibility for test reaction on emergency events of different EPhC's configuration which was created by means of "master".

[1] V.M.Rybin, G.V. Rybina. Using the Tool Complex G2 for Control of Electrophysical Complex. Proceedings of ICALEPCS'97, Beijing, China, November 3-7, 1997, p.107-109