**Ïîñëå ×åðíîáûëÿ è Ôóêóñèìû-1: âûÿâëåíèå è îöåíêà íåîïðåäåë¸ííîñòåé è ìàëîâåðîÿòíûõ ðèñêîâ ñ êàòàñòðîôè÷åñêèìè ïîñëåäñòâèÿìè**

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Аннотация. Äàí îáçîð ñîâðåìåííîãî ñîñòîÿíèÿ ïðîáëåìû áåçîïàñíîñòè ÿäåðíîé ýíåðãåòèêè ïî ìàòåðèàëàì îòêðûòîé îòå÷åñòâåííîé è çàðóáåæíîé ïå÷àòè. Ðàññìîòðåíû îñíîâíûå ôàêòîðû, îêàçûâàþùèå íåïîñðåäñòâåííîå âëèÿíèå íà íåîïðåäåë¸ííîñòü ðèñêîâ íà àòîìíûõ ýëåêòðîñòàíöèÿõ (ÀÝÑ), íà÷èíàÿ ñ îøèáî÷íûõ äåéñòâèé ÷åëîâåêà-îïåðàòîðà è çàêàí÷èâàÿ íåïðåäâèäåííûìè ñáîÿìè è îòêàçàìè îáîðóäîâàíèÿ ÀÝÑ â àâàðèéíûõ è ÷ðåçâû÷àéíûõ ñèòóàöèÿõ. Ïðåäñòàâëåíà ìåòîäîëîãèÿ àíàëèçà è îöåíêè ðèñêà ÀÝÑ, êîòîðàÿ ïîçâîëÿåò â óñëîâèÿõ íåîïðåäåë¸ííîñòè ñâÿçàòü âîåäèíî (ñèíòåç) íåîáõîäèìóþ ðàçíîîáðàçíóþ òåìàòè÷åñêóþ èíôîðìàöèþ è ñîâðåìåííûå âû÷èñëèòåëüíûå òåõíîëîãèè ñ öåëüþ óïðàâëåíèÿ áåçîïàñíîñòüþ ÀÝÑ. Âåðîÿòíîñòíûé àíàëèç áåçîïàñíîñòè áàçèðóåòñÿ íà èñïîëüçîâàíèè ëîãè÷åñêèõ ñòðóêòóð - äåðåâüåâ îòêàçîâ è òåîðèè âåðîÿòíîñòåé êàê áàçîâîé òåîðèè äëÿ îáðàáîòêè ñëó÷àéíûõ ïåðåìåííûõ. Îòñóòñòâèå äîñòîâåðíûõ ñòàòèñòè÷åñêèõ äàííûõ è ðàçìûòûé, ôðàãìåíòàðíûé õàðàêòåð èìåþùåéñÿ èíôîðìàöèè ïî èñõîäíûì îòêàçàì äåëàåò öåëåñîîáðàçíûì ðàññìîòðåíèå èõ êàê íå÷¸òêèõ ñîáûòèé. Ïðè ýòîì ñîáûòèÿ îïèñûâàþòñÿ ñ èñïîëüçîâàíèåì ôóíêöèé ïðèíàäëåæíîñòè. Ïîñëåäíèå ïîëíîñòüþ õàðàêòåðèçóþò êàê çíà÷åíèå ñîîòâåòñòâóþùåãî ñîáûòèÿ, òàê è åãî âîçìîæíûé ðàçáðîñ.

Êëþ÷åâûå ñëîâà: ÿäåðíàÿ ýíåðãåòèêà, àòîìíàÿ ýëåêòðîñòàíöèÿ, ÷åëîâå÷åñêèé ôàêòîð, ôàêòîðû îïàñíîñòè, òÿæ¸ëàÿ àâàðèÿ, àâàðèéíàÿ ñèòóàöèÿ, ðàäèàöèîííàÿ àâàðèÿ, ÷ðåçâû÷àéíàÿ ñèòóàöèÿ, ñòðåññîâûå íàãðóçêè, îáëó÷¸ííàÿ òåïëîâûäåëÿþùàÿ ñáîðêà ÿäåðíîãî ðåàêòîðà, ðàäèàöèÿ, ðàäèîàêòèâíîå çàãðÿçíåíèå, äîçà îáëó÷åíèÿ, ðàäèàöèîííàÿ áåçîïàñíîñòü, ðèñê, âåðîÿòíîñòíûé àíàëèç áåçîïàñíîñòè ÀÝÑ, íåîïðåäåë¸ííîñòè, ñîâðåìåííûå âû÷èñëèòåëüíûå òåõíîëîãèè, ïðîãðàììíîå îáåñïå÷åíèå, óïðàâëåíèå ðèñêîì.

**After Chernobyl and Fukusima-1: Revelation and Evaluation of Uncertainties and Improbable Risks with Catastrophic Consequences**

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Abstract. There is given overview of the current state of the nuclear safety problem based on open domestic and foreign press. The main factors that have a direct impact on the risks uncertainty on nuclear power plants (NPP) from human erroneous actions for unforeseen failures and equipment on NPP at accidents and emergency situations are considered. The methodology of risk analysis and assessment of NPP that allows to combine the necessary variety thematic information and modern computing technology with the aims of NPP safety management under uncertainty conditions is submitted. Probabilistic analysis of safety is based on use of logic structures -fault trees and probability theory as base theory for processing casual variables. Absence of the authentic statistical data and fuzzy. fragmentary character of the available information on initial events makes expedient their consideration as fuzzy events. Thus events are described using membership functions. Membership function completely characterizes both value of corresponding event, and possible spread of values.

Key words: nuclear energy, nuclear power station, human factor, danger factors, severe accident, emergency situation, radiation accident, stress loads, irradiated fuel assemblage of a nuclear reactor, radiation, radioactive contamination, radiation dose, radiation safety, risk, probabilistic safety analysis of NPP, uncertainty, modern computing technology, computing soft, risk management.