ERG System for Neurotoxicity Risk Assessment

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... thesis the conceptual background for
... a neurotoxicity risk assessment
... system are given.

... toxicity, Assessment, Electroretino-
... processing, Kalman filter, System

I. INTRODUCTION

... of neurotoxicity risk assessment for
... electrophysiological ones. Particularly they
... recording and analysis of electric potentials
... of visual system are being stimulated
... electrooculography, electroencephalography,
... The electroretinography (ERG) can be
... it's non invasive, high sensitive and
... detectability of neurotoxicity [1].
... of the electric potentials are registered
... a few μV to approximately 0.5 mV, the
... process is accompanied by considerable
... both of the internal and external
... ERG-signals recording time is limited by
... light adaptation loss as well as by the
... izing factors in consequence of some
... patient. All these impose heavy demands on
... measurement, processing and analysis of ERS
... and implementations in data bases of
... assessment systems being built on the ERG

... information about theoretical and
... of the ERG biotechnical system application
... assessment. We consider the common
... ERS, methods of signal processing and
... ation and give the block diagram of an
... analyze some obtained results.

... OUNDS FOR METHOD OF ERG
... SYSTEM EFFECTIVENESS INCREASING

... is taken up in attention is cyclic
... ity, depending from retina properties
... and finiteness of ERS [2]. So, from
... cyclic adaptation of recursive processing of
... estimation of ERG with a mix of ERS
... external noise was appears [3, 4], as well as
... results of statistical theory of decision for
... of the neurotoxicity risk assessment
... base of typical norms and toxicities ERG.
... along with optimum signal processing
... ence theories under an engineering
... schematic diagram (Fig. 1) was given.

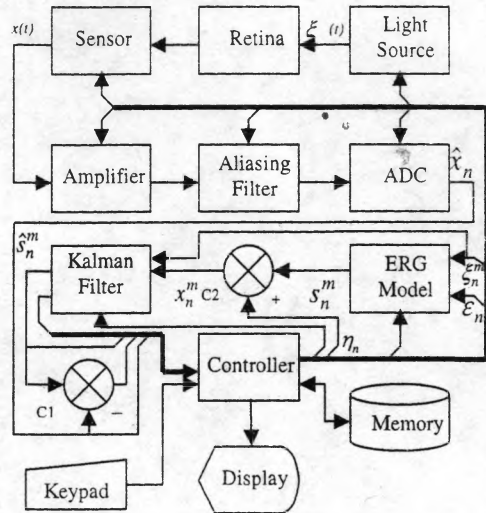... Technical University named after Ivan Pului,
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Fig.1 Schematic diagram of ERG system with intelligence properties
($\xi(t)$ — light stimulus, $x(t)$ — ERS, $\widehat{x}_n$, $n = \overline{0,N}$ — ERS code sequence, ε_n, η_n — noises sequences, $\widehat{s}_n^m$ — Kalman estimation of ERS under a standard model s_n^m, C1.C2 — summations; all parts of diagram are being under control)

III. CONCLUSION

The concepts of intellectual adaptation (of the light stimulus, electrodes system, representations of the mix of an electroretinosignal with external and internal noises, the recursive processing of the mix) had been put on allow us to obtain the effective, optimal, automation electroretinographical system for neurotoxicity risk assessment for human health.

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