

Our latest news.

The group of leading researchers and developers of multithreshold decoding (MTD) algorithms in SRI RAS with feeling of deep satisfaction informs, that in full conformity with the plan of researches and technological development on MTD problem development new, the sixth, MTD decoders generation with the considerably improved characteristics for channels with high noise level is completed.

Fast hardware and rather productive software versions of decoders of this type provide effective and high fidelity transmission of binary digital streams through channels with ratio $E_b/N_0 \sim 2$ dB. In the one of last hardware MTD versions the error probability per bit $P_b(e) < 10^{-6}$ is guaranteed, and in other MTD decoders variant provide the reliability corresponding to a probability $P_b(e) \sim 10^{-8}$. Works on specification of values of so high level of reliability will be soon completed.

Now already enough full testing both types of new decoders, including for PLIS Xilinx is executed.

The first variant of new type of the MTD decoder provides for it an opportunity of the effective error correction at the higher noise level, than for its previous versions. It is achieved by application of codes with high levels of security from influence of effect error propagation effect (EP), and also realization of new principles of the codec parameters coordination with used codes.

The second version of the decoder grows out developments of the ideas realized in the first decoder. But it possesses new properties which too are defined by a choice of special codes. These ideas concern to 1986 when we had been formulated idea of parallel code concatenation which at once has been adapted to idea of MTD decoding. As a result of complex search codes which could be classified as in parallel concatenating and simultaneously decoding by means MTD have been found. Their decoding can be interpreted as application of the methods similar to realization of concatenating codes decoding.

Second of possible interpretations of these codes decoding will consist simply in application of new means of optimization. They will consist simply of methods of formation of additional weights of used checks which create an opportunity of work of the decoder at higher noise level.

The carried out researches with new types of MTD decoders allows to speed up in a many times works on creation of even more effective on CG decoders with the large throughput.