

The noise cancellation should be the first step of each signal processing device. The most difficult type of noise which should be suppressed is an impulsive type of noise. The group of nonlinear robust filter successfully suppress such noise. The aim of this work is to present a new approach to myriad filter computation and its application in biomedical signal processing. This new method is based on 2nd order polynomial approximation. The special conditions are proposed for proper use of this new myriad filter. The effectiveness of such approach is shown for ECG signal filtering in the presence of an impulsive noise. This kind of noise is simulated using Symmetric-alpha-Stable distribution and the level of noise is controlled with Geometric-SNR. Additionally, the adaptive estimation of the linear parameter  $K$  of the myriad filter is proposed.