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CRITICAL POINTS OF EXTENDED PHASE SPACE OF INSTANTANEOUS CARDIAC RHYTHM AS CARDIOVASCULAR SYSTEM STATE MARKERS

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One of the most effective instantaneous cardiac rhythm (ICR) imaging methods is application of extended phase space (EPS) of ICR. In this space, the ICR state is described by a point in the with coordinates where – ICR rate, –ICR change rate, –retry equal values y and v in different time moments.

We wrote down and implemented the MAPLE programs allowing the real-time monitoring of the dynamics of EPS of ICR. In this work, we demonstrate the actual examples of this dynamics based on the results of Holter monitoring of patients of the Tver Cardiology Health Center.

It was demonstrated that the EPS structure corresponded with the patient statuses determined by standard cardiology methods.

There were found critical points of EPS of ICR representing the centres of attraction of phase trajectory. Geometrically this appears as high and narrow EPS peaks. Near the peaks, the phase point spends sufficiently long time thus giving deterministic tone to ICR. The critical points of EPS of ICR are determined by cardiovascular system state features, and undoubtedly can be its markers.

Short biography note

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