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Determination of instantaneous cardiac rhythm parameters in multifractal dynamics model by regularized Newton's method. (Russian. English summary) [Zbl 1413.92004](#)

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A system of nonlinear equations of a multi-fractal dynamical model describing instantaneous cardiac rhythm in a regular domain and in the domain of step functions is found. The system of equations is solved numerically using a regularized scheme of Newton's method. Numerical values of the multi-fractal model parameters with use results of the Holter monitoring are found for the patient of the Tver (a small town near Moscow) cardiac hospital.

Reviewer: [Sergei Georgievich Zhuravlev \(Moskva\)](#)

MSC:

[92B25](#) Biological rhythms and synchronization

[92C50](#) Medical applications (general)

[28A80](#) Fractals

Keywords:

medicine; cardiac rhythms; instantaneous rhythm; fractals; fractal dynamics; Holter's monitoring; numerical methods; Newton method; bifurcations

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