Geometric principles
in the theory of heart rhythm disorders

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Every second, a regular heartbeat is required to keep us alive. The electrically active heart tissue can be mathematically modeled by a set of partial differential equations of the reaction-diffusion type. To understand the effect of anisotropic wave propagation, it is useful to consider the electrical diffusion tensor as a metric for the space, which makes the heart a Riemannian manifold. Minimal principles and the effect of adding more spatial dimensions will be discussed.