Review of: "On the statistical arrow of time"

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Potential competing interests: No potential competing interests to declare.

I found early in the article that the authors did not understand what phase space is and what it represents and this unfortunately undermined the rest of the article. Phase space describes the state of a system by specifying all the generalized coordinates and their associated generalized momenta at each point in time. Each point in the phase space describes the state of the system at a specific point in time, as each point will have a certain value of position and momentum, and these two quantities are enough to completely describe the time evolution of a classical system. Hamiltonians (Hamilton's equations) describe how the position and momentum change with time, so they define the time-evolution of a system in phase space. In other words, given a specific initial state of a system (an initial point in phase space), Hamilton's equations predict where this point will move next in phase space (they in effect define an arrow of time). As time passes, this initial state of the system will then trace out a kind of curve through phase space. This curve represents the solution to Hamilton's equations of motion (the coordinates and momenta as functions of time). I did not proceed further as the premises developed in the article lost their validity.