

1046-34-291

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Adiabatic invariants for 2D Linear Dynamic Systems on Time Scales. Preliminary report.

We introduce an adiabatic invariant for 2D dynamic systems on a time scale, using the properties of the ratio of Wronskians. Note that this adiabatic invariant is a generalization of the adiabatic invariant of Lorentz's pendulum. Using the construction of fundamental solution of 2D linear dynamic system on a time scale, and WKB series by a small positive parameter, we prove that the change of the adiabatic invariant is vanishing as the small parameter approaches zero. We show that this result is true for the difference equations only for appropriate choice of graininess depending on the small parameter. We show also that the change of adiabatic invariant may be estimated above by any positive power of the small parameter. (Received August 25, 2008)