



Figure 3: The heteroclinic solution of (4.3). It is observable that the bounded solution $\varphi_{\bar{\eta}}(t)$ is heteroclinic to the 8-periodic solutions $\varphi_{\eta^*}(t)$, $\varphi_{\eta^{**}}(t)$.

5 Conclusion

The present study is devoted to the existence of homoclinic and heteroclinic motions in dynamic equations on time scales. Sufficient conditions that guarantee the existence of homoclinic and heteroclinic motions are provided, and the definitions of stable and unstable sets are given on the basis of functional spaces. The equation under investigation can be considered as a hybrid system since it combines the dynamics of the discrete map with the continuous dynamics of the equation on time scales. The presented example and simulations reveal the applicability of our theoretical results.

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