

MASLOV INDEX FOR HETEROCLINIC ORBITS OF NON-HAMILTONIAN SYSTEMS ON A TWO-DIMENSIONAL PHASE SPACE

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ABSTRACT. Motivated by [12] and [11], we use a geometric approach to define the Maslov index for heteroclinic orbits of non-Hamiltonian systems on a two-dimensional phase space, and we proceed by explaining the Maslov index is equal to the sum of the nullity of a family of Fredholm operators. As an application, we illustrate the role of our results in the Nagumo equation.

1. Introduction and description of the problem

The recent bifurcation results for homoclinic and heteroclinic trajectories of non-autonomous vectorfield and some stable analysis results for traveling wave of reaction diffusion equation proved in [16], [12], [7] and [9] respectively, index theory puts on evidence the central role played in numerous problems of Hamiltonian and non-Hamiltonian systems. The literature on the subject is quite rich and so we refer an interested reader to [11], [6], [12], [8] and references therein for further applications. In particular, we mention the paper [11] and [12]. In [11], the Maslov index for heteroclinic orbits of Hamiltonian systems has been defined and its relation with another topological invariant known as spectral flow has been studied. In [12], authors define a new Z_2 -index for heteroclinic orbits

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