Abstract

Morse index theory in the classical framework provides an equality between the spectral properties of the second variation of the Lagrangian functional and the oscillation properties of the space of solutions of the associated boundary value problem. For carrying over a similar result in the non-Hamiltonian context which can be useful for investigating the dynamical properties of dissipative systems, we introduce a new topological invariant, the so-called "degree-index" defined in terms of the Brouwer degree of a suitable determinant map of a boundary matrix, which provides one possible substitute of the Maslov index in this non-Hamiltonian framework and finally we prove the equality between the Morse index and the degree-index in this non-selfadjoint setting through a new abstract trace formula.